BRITISH PHARMACEUTICAL CONFERENCE.

FOURTH ANNUAL MEETING—DUNDEE.

OFFICERS.

President—R. BENTLEY, F.L.S., M.R.C.S., Professor of Botany in King's College, London; Professor of Materia Medica and Botany to the Pharmaceutical Society.

Vice-President, who has filled the office of President—H. DEANE, F.L.S., Clapham.

Vice-Presidents—DANIEL HANBURY, F.R.S., London; W. W. STODDART, F.G.S., Bristol; J. INCE, F.R.G.S., London; J. HARDIE, Dundee.

Treasurer—H. B. BRADY, F.L.S., F.C.S., Newcastle-on, Tyne.

General Secretaries—J. ATTFIELD, Ph.D., F.C.S., London; R. REYNOLDS, F.C.S., Leeds.

Committee—J. C. BROUGH, F.C.S., Stockwell; S. GALE, F.C.S., London; T. B. GROVES, F.C.S., Weymouth; A. F. HASELDEN, London; S. U. JONES, Leamington; G. F. SCHACHT, Clifton; R. FITZHUGH, F.C.S., Nottingham.

Dundee Local Committee.

President, Mr. RUSSELL; *Treasurer*, Mr. LEVIE; *Secretary*, Mr. HODGE. Messrs. A. B. ANDERSON, W. DOIG, P. G. DONALD, D. H. FEBRIER, G. JACK, C. KERR, W. LAIRD, G. B. MACKAY, D. J. M'KINNON, A. RATTRAY. P. SANDEMAN, D. WATSON.

The chemists and druggists of the second commercial town of Scotland have signified their approval of the objects of the British Pharmaceutical Conference by doing all that could be done to render the Dundee meeting memorable as a scientific and social event. Those who feared that the meeting of 1867 would be inferior in importance to the gatherings at Bath, Birmingham, and Nottingham, were not acquainted with their professional brethren of Dundee, and were not prepared for the united action which gave rise to the interesting and enjoyable proceedings of the past week. The hospitality of the entertainers was unbounded, and those who had the good fortune to be among their guests can never forget the kindness and courtesy of the men of Dundee. Though every member of the local committee cheerfully undertook his share of the work connected with the meeting, we must specially note the exertions of three gentlemen to whom the members of the Conference are greatly indebted. We need not inform the visitors to Dundee that we refer to Mr. Hodge, the energetic local secretary; to Mr. Russell, the urbane and hospitable president; and to Mr. Levie, the genial treasurer, who so admirably conducted the festivities at the Royal Hotel. The pharmaceutists from Edinburgh, Glasgow, and other towns of Scotland who were present at the meeting, did much to promote its success.

The first sitting was held on Tuesday, September 3, the place of meeting being the Ward Chapel Rooms, which were comfortably and tastefully furnished. The walls of the principal room were draped with crimson cloth, on which a most interesting collection of photographs, paintings, and drawings was displayed. On two large tables in front of the platform were arranged many beautiful and curious specimens of drugs and chemicals, lent by the Pharmaceutical Society of Edinburgh.

The President, Professor BENTLEY, F.L.S., M.R.C.S., took the chair at about ten o'clock, and the proceedings commenced with the election of a large number of members.

DELEGATE FROM CHICAGO, U.S.

Mr. DEANE (Vice-President) introduced Mr. Ebert, a delegate from the College of Pharmacy in Chicago, and referred to that gentleman's important contributions to the pharmaceutical literature of America. He stated that Mr. Procter, the well-known editor of the *American Journal of Pharmacy*, had intended to be present at the meeting, but had been compelled to leave Europe a few days before.

On the motion of Mr. SCHACHT (Clifton), Mr. Ebert was unanimously elected a member of the Conference.

Mr. EBERT returned his sincere thanks for the honour conferred upon him, and assured the meeting that the pharmaceutists of America were deeply interested in the proceedings of the Conference.

Professor ATTFIELD then read the

REPORT OF THE EXECUTIVE COMMITTEE,

which showed that the numerical strength of the Conference was increasing satisfactorily. The members now numbered 478. Mr. J. Hardie, Dundee, had been elected one of the Vice-Presidents, and Mr. J. Hodge had been elected to the office of local secretary. Both these gentlemen had exerted themselves most praiseworthily, and had done much to excite an interest in the present meeting throughout Scotland. Since they last met, Dr. J. B. Edwards, one of the Vice-Presidents, had left for Montreal; and though his removal was a matter of regret, yet it was a source of gratification to know that he was continuing to promote the cause of science in the place where his lot had been cast. Important changes had been effected during last session of Parliament connected with pharmacy, but an appropriate examination would have to be enforced by legislative authority before matters would be placed on that satisfactory footing they ought to occupy.

Mr. HARDIE moved the adoption of the report.

Mr. DOIG seconded the motion. He considered the chemists of Dundee would reap a great benefit from their connection with the Conference, because gentlemen of all shades of opinion were brought together in a way they never were before.

The report was adopted unanimously.

Mr. H. B. BRADY (Treasurer) then read the

FINANCIAL STATEMENT,

from which it appeared that the income of the Conference for the year 1866-67 amounted to £78 0s. 1d., while the expenditure was £72 13s. 6d.—showing a favourable balance of £5 6s. 7d. The amount due for subscriptions at the present time was £53 15s.

Referring to the arrears of subscription, Mr. BRADY suggested that local treasurers should be appointed to collect subscriptions for the districts in which meetings of the Conference had been held. The smallness of the annual subscription accounted for the neglect of members in transmitting their payments to the treasurer. The suggestion was subsequently put as a motion and carried.

The President then read his address, which we give without abridgment.

THE PRESIDENT'S ADDRESS

ON THE STUDY OF BOTANY IN CONNECTION WITH PHARMACY.

GENTLEMEN,—The honour which you have been pleased to confer upon me by electing me for the second time as your President is another proof of the kindness and consideration I have invariably received from the members of your profession, and an additional link in the chain which, for the last twenty years, has bound us so intimately together. Posts of honour are not commonly, however, posts of ease, for each ordinarily brings with it increased responsibilities and increased cares. I find myself, therefore, in my present position as your President, called upon, in accordance with annual custom, to open the proceedings of the British Pharmaceutical Conference with an introductory address. In the address which I delivered last year at Nottingham on a

similar occasion to the present, I pointed out, as fully as time would allow me, the intimate relations which existed between botany and pharmacy, and the consequent advantages to be derived by the pharmaceutist from a knowledge of botanical science. I then stated that the subject was of too extensive a nature to be exhausted in the limited period of time allotted to such addresses, and I accordingly confined myself to the consideration of some of the more immediate and direct advantages which the pharmaceutist would derive from a knowledge of botany, and promised, on some future opportunity, to conclude the subject with some observations on its value as a mental training and as a recreation. That opportunity is now afforded me, and hence I proceed to redeem my promise by concluding on the present occasion the subject of my former address.

All experienced teachers of natural science must now admit that the study of nature is eminently calculated to impart tone and vigour to the mind and to elevate the general character, and should, therefore, be made generally an important part of a liberal education. Professor Balfour has well summed up its advantages, in these respects, by saying, that "It exerts a most beneficial influence on the observant faculties; it calls the perceptive powers into action; it teaches the student to note the resemblances and differences among objects; it promotes the formation of orderly and systematic habits; and it enforces accuracy, both of observation and of expression. It also benefits the mind by investing the objects around us with a new interest, and it supplies healthy and cheerful occupation at all times." To the student of pharmacy, therefore, who has to combine scientific knowledge with practical business habits, if he would desire to become something beyond a mere mechanical drudge, the study of natural science, and especially botany, will be peculiarly valuable.

The advantages of the study of natural history in leading the mind to observe correctly and to discriminate accurately, have been so admirably and so tersely described by one who was my great teacher in botany,—the late eminent and lamented Professor Edward Forbes,—that I cannot do better than quote his own words. Speaking of the two qualities, *correct observation* and *accurate discrimination*, he says:—"The *first* depends mainly on the power of seizing all the features of an object or case with clearness and facility, detecting adventious characters at sight, and excluding such from all influence on our conclusions. The *second* implies powers of just comparison, of perceiving the mutual relations of parts or facts, and or testing the possible agreement of statements with the circumstances which accompany them. Now, though all men are endowed with the elements of these qualities, all are not born correct observers or accurate discriminators. Men must be therefore educated into such. The mind must be trained to reason justly, the instruments of the mind to observe correctly. The classical and mathematical studies of our youth are not intended merely to teach classics and mathematics, but to train us to the business of life, and to right judgment in the higher pursuits of men. The bodily exercises of our youth have not for their object merely those pleasures which such exercises afford, but the strengthening of our physical powers in order to ensure us a healthy and vigorous manhood. The training of the mind makes the intellectual mind, the training of the body the physical man. The end is gained in both cases by means essentially distinct from that end." He then proceeds to show that the study of natural history should be regarded in a similar light, as follows:—

"The first lesson of natural history is *observation*. The study of a vegetable or animal species is the perfection of observation as far as that species is concerned. The form, the substance, the qualities, the phenomena of existence, the influence of surrounding objects, are all observed with the greatest precision, and defined so as to be capable of expression in words. No point effecting that species is left untouched. The study of a group or genus of vegetables or animals is in like manner the perfection of discrimination. All the members of the group are compared in all their parts with each other, the relations which they have in common are summed up, and their differences recorded in every possible point of view. The causes of those relations and differences are anxiously inquired into, and a survey is taken of the bearings of the whole group to its proximate allies; and, finally, to all equivalent assemblages in organized nature."

No one could go through such a course of study without having his mind improved in tone and vigour, for by such an exercise it must gain in both its analytic and synthetic powers.

While the study of botany as a branch of natural history may be thus shown to be admirably calculated to train the young student to correct observation and accurate discrimination, qualities of the very highest importance to all scientific men; its value in promoting orderly and systematic habits, so essential to business men, must not be lost sight of. Thus, what can be better adapted for these purposes than the preserving and arranging plants in the formation of herbarium? The care required in collecting, preparing, drying, and preserving the required specimens; the neatness necessary to secure them on the papers on which they are placed, and to affix suitable labels; and the orderly and systematic manner in which they have, lastly, to be grouped together into genera, sub-classes, classes, and other assemblages, cannot but be eminently useful in such respects.

Having now briefly alluded to the advantages to be derived from the study of such branches of natural history as botany in training the mind to observe correctly, discriminate accurately, and to acquire orderly and systematic habits, I cannot conclude this portion of my subject without indulging a fervent hope that the time is not far distant when such studies will become an essential part of the education of our youth. In saying thus much, I have no desire to discountenance, in any way, the study of the classics; for the youth destined for the pursuit of pharmacy must acquire a certain amount of knowledge of Latin and Greek, in order that he may understand rightly the prescriptions and directions of the physician, and the derivation and accurate meaning of the technical language necessarily employed in the sciences with which he must become acquainted. He ought, however, at the same time, to have some opportunity afforded to him of acquiring a knowledge of natural science, which would not only assist in training the youthful mind to thought and observation, but would have so useful a bearing on his future profession. The effect of such studies on the Continent, where science forms an important part of the education of youth, is abundantly evident; and already, in some of our great public schools, such as Harrow, Rugby, and Marlborough, some attention is given to science; and I cannot believe that the time can be far distant, in a country like our own, which owes so material a part of its prosperity to a knowledge of science, and peopled as it is so largely by men of practical minds, before the study of natural science will be considered as at least as necessary in the education of our youth as that of the classics.

Another great advantage which the pharmaceutist will derive from taking up the study of a natural science is that which all must experience by the combination of scientific with the more purely practical studies of their profession, for nothing can be more injurious to the healthy action of the mind than to confine it entirely to some monotonous occupation; and nothing, on the other hand, can be more favourable to the development of its higher faculties and nobler aspirations, than to turn, if only for the brief periods of relaxation which the necessary labours and cares of the world may leave unoccupied, to the contemplation of the works of the Great Author of the universe.

Formerly it was the custom to depreciate the value of the study of all the sciences as a branch of the education of the pharmaceutist, and he was recommended to confine his attention entirely to the practical parts of his business—a profession it could not be then called; but thanks to the liberal and enlightened founders and subsequent supporters of the Pharmaceutical Society, as well as to the gradual progress of knowledge among all classes of the community, much has been done to drive away this degrading idea, and we may now fairly look forward to the time when an unscientific pharmaceutist will no longer be found.

We now proceed to treat of the advantages to be derived from the study of botany, as a *recreation* from the arduous duties of your profession. Recreation! I think I hear the hard-worked and too closely confined pharmaceutist exclaim, pray what time have I for recreation? But surely there are

but few, if any, who do not have certain periods of relaxation; and to such, what study is capable of affording so much that is pleasing and invigorating as that of botany? Who is there that is not attracted by the sight of a beautiful flower? And if the mere sight of a beautiful plant is thus calculated to excite our attention and to please our senses, how much more will it do so, if we examine its marvellous structure, study its functions, learn its history, and ascertain the part it plays in the grand scale of creation? Is not such a pursuit eminently calculated to prove a recreation at once agreeable and purifying to our natures? And such a study is within the reach of us all, although in varying degrees. Thus, the pharmaceutist, whose business is fixed even in the densest parts of our crowded cities, will find much to interest him, for it has been truly said that, "however much the sun may be obscured from your abode, still some forms of vegetable life will be put forth; and though by comparison the rose or the lily may superlatively excel chickweed or groundsel, yet there is no plant, however insignificant, however common, which has not its own peculiar beauties and charms; and which would not be esteemed as a marvel of design, if others more beautiful were absent from the comparison." But the opportunities afforded to the pharmaceutist will be increased a hundredfold, when residing in, or when his vacations lead him into the country, "for the study of botany can nowhere be so well prosecuted as when remote from cities and the busy haunts of men." To the country pharmaceutist, therefore, the advantages to be derived from its study as a recreation, are more manifest, for to him the stores of nature are fully exposed, for in no season of the year will he be unable to pursue it; for there is none in which he will not be able to find something worthy of his attention; for each brings with it its own particular plants. Thus, in the winter months and early spring, many cryptogamic plants are in full maturity; as the spring advances, he will find plants coming into flower of exquisite beauty and delicious odour, "sweet harbingers of the approaching summer," as well as others, which although frequently insignificant in appearance, yet will in after seasons yield fruits of great service to all. As the summer advances he will see vegetation in all its luxuriance, and as month succeeds to month, he will find each developing its respective beauties and thus affording him a ceaseless source of study and gratification, As autumn succeeds to summer, he will see again new races of plants springing into flower, whilst at the same time those of the preceding seasons have now matured their fruits, which are frequently of inestimable value to man. No season of the year, therefore, is without its interest to the botanist. He who takes up the study of botany as a recreation, has to wait for no particular periods, as the 12th of August, the 1st of September, or the 1st of October, to pursue it; but he will find that each month brings with it its own peculiar pleasures.

Whilst the pursuit of botany may be thus shown to be a most agreeable recreation, it is, at the same time, a most healthful one, leading us, as it does, into the fields and gardens to breathe the pure air of heaven removing us at the same time from all those contaminating pursuits which weaken the body and debase the mind, giving also, an increased interest to our walks and rides, and furnishing us with a series of most agreeable associations. What associations can exceed in interest those of the botanist, who, when in turning over his collections in future years, and referring to a specimen, the sight immediately recalls to him the time and place in which it was collected, the friend who then accompanied him, probably the very subjects upon which they were conversing when that specimen was collected? and his thoughts will then especially wander to that friend, his many good qualities, the agreeable hours spent in his company; in fact, everything of interest relating to him will pass in succession through his memory. What friendships can exceed those thus formed by kindred spirits? And thus we find that the friendships of naturalists generally last throughout life.

The pursuit or botany being thus shown to be most agreeable and healthful, it can but be of essential value to those who, whether in the decline of life, or when the powers of the mind and body have been overworked by a too laborious professional life, require an entire relaxation There is no one that can appreciate its importance as a healthful recreation more than myself, for I originally commenced the study of botany as a recreation and for the pursuit of health, when both my bodily and mental powers had been weakened by a too laborious application to in-door pursuits. By its study I was led into the fields, where I speedily regained my health, and at the same time, formed associations and friendships, some of which have lasted ever since, and to which I look back as among the brightest in my life.

The study of botany being thus eminently calculated to prove an agreeable and healthful recreation to the pharmaceutist, I cannot but urge upon the young student of pharmacy the importance of its study during his pupilage, in order that he may then acquire that knowledge of its details and technicalities, as will enable him hereafter to pursue and enjoy it as a recreation.

Independently of the value of botany as a healthful and agreeable recreation, there is an innate gratification, a peculiar pleasure, which all men with properly regulated minds must feel when contemplating and studying the most beautiful of God's works, for "even Solomon in all his glory was not arrayed like one of these." Perhaps there is no study that is better adapted than that of botany for such a purpose; for the objects of which it treats are constantly before us, and their study is, therefore, within the reach of all. We can contemplate their beauty; study their structure; investigate the laws by which they are enabled to live, grow, and propagate themselves; see how admirably adapted they are to meet the varying conditions under which they are placed; and learn the mutual interchanges which take place between them and the inorganic world on the one hand, and the animal creation on the other. None but those of the most depraved minds could derive anything from such a study as this but that which was pure and lovely.

And, lastly, while thus dwelling upon the advantages and pleasures to be derived from the study of botany, I must not forget to say a few words as to its influence in purifying the faculties of the mind, and elevating our thoughts, from the evidences of design thus brought before us, to Him who designed them all. When we regard any beautiful object or clever design of human origin, do not our thoughts commonly wander from the object to the designer, whom we shall hereafter think of, as one to be admired and honoured? And if such be our thoughts in thus contemplating the works of man, how much more will it be the case if those works are of Divine origin? Thus, when we see a plant with its wonderful structure and exquisite beauty, learn how admirably it is adapted to the conditions under which it is placed, and the influence it exerts in creation, what man is there with a properly regulated mind, but what must rise from such a study with a feeling of reverence for Him who designed it? and he will naturally be induced to ask, whether He, who thus formed the plants of the fields, and enabled them to perform such an important part in the universe, will be unmindful of him,—His noblest work,—a being endowed with a soul and adapted for a higher scale of existence? With such thoughts, could he do otherwise than endeavour so to discharge his duties in this world, that he might look forward with full assurance to a brighter and happier existence hereafter.

And now, before I conclude, let me, on behalf of myself and other visitors, return our cordial thanks to the local committee for the kind and hospitable manner in which they have received us, and for the very satisfactory arrangements they have made for holding the meetings of the Conference.

The address was warmly applauded.

Mr. YOUNG (Edinburgh) moved a vote of thanks to the President for his admirable address. The motion was seconded by Mr. KERR (Dundee), and carried by acclamation.

Mr. HODGE, the local secretary, on behalf of the chemists of Dundee, had much pleasure in returning thanks for the kind appreciation that had been shown of the arrangements which had been made for the meetings of the Conference this year. It had given the Committee much pleasure in endeavouring to make the arrangements as complete as possible, and they had reaped their reward by the expression of approval which had been made.

Dr. GIBSON said he had listened with very great satisfac-

tion and pleasure to the portion of the President's address he had heard, and he thought the meeting of the Pharmaceutical Conference was an exceeding good augury for the town of Dundee, in which he had resided for a long time. He had long felt that so respectable a body as the chemists and druggists of Dundee had not occupied that position which they were entitled to do, and it had been an earnest endeavour on his part—although he had no power to do much good—to see them occupy their proper position; and he hoped the efforts of the Conference would result in the recognition of the practical chemists and druggists by the State as well as the medical profession, and that the members of it would have, like the medical profession, their diploma, which would do something towards raising them in the esteem and respect of the community. He entered most warmly into the thoughts, so far as he had heard them, expressed by the President, and he gave his humble and entire concurrence in the objects of the meeting.

The reading of the papers then commenced. For want of space we defer the publication of our notes of the discussions until next month.

ON THE ADULTERATION OF WHITE PRECIPITATE. BY J. B. BARNES, F.C.S.

Seventeen years ago, whilst on the look-out to apply my newly-acquired knowledge of chemical analysis, I tested some white precipitate in the stock of a highly respectable pharmaceutist, and was astonished to find that it contained fifty per cent. of chalk. It had been supplied by a wholesale house in London, doing a large trade, and at the price of a pure article. I made the matter known through the medium of the *Pharmaceutical Journal* (*vide* Vol. 9, p. 240).

Having applied to some of the members of the Conference residing in the principal towns, to procure from their respective neighbourhoods samples of this drug; through their kind assistance, I obtained fifty-eight samples. Three other specimens were forwarded to me by Dr. Attfield, obtained, I believe, from one of our local secretaries.

Small portions of each of these parcels were separately exposed to the action of a strong heat. Of this large number (sixty-two), *four* only exhibited evidence of the presence of an adulterant: one, proved to the carbonate of lead only; another, a mixture of carbonate of lead and white precipitate; and the remaining two, mixtures of chalk and white precipitate.

From Bath, I received three samples, all of which are pure.

From Bristol, four specimens, marked respectively No. 1, No. 2, No. 3, and No. 4.

No. 1, pure.

No. 2, a qualitative examination showed the presence of white precipitate and carbonate of lead. One gramme was placed in a tared porcelain crucible, and exposed to a strong heat; when cool, it was weighed, and found to contain ·642 gramme of oxide of lead, which, upon conversion into carbonate gave ·747 gramme, or 74·7 per cent. of adulteration.

No. 3 proved to be a compound of white precipitate and chalk. One gramme was exposed to heat sufficient to expel the ammoniated mercury, the quantity of chalk obtained was ·22 gramme, or 22 per cent.

No. 4, this sample consists entirely of carbonate of lead.

From Birmingham; one specimen, pure.

From Bolton; one sample, pure.

From Bournemouth; one sample, pure.

From Cambridge; one sample, pure.

From Cardiff; one sample pure.

From Christchurch; one sample, pure.

From Coventry; one sample, pure.

From Crediton; one sample, pure. The sender of this specimen does not think adulterated white precipitate could be found in the town.

From Dover; two samples, both pure.

From Dublin; two samples, one of these was purchased in a second rate part of the town, both pure.

From Dundee; one sample, pure.

From Edinburgh; three samples respectively from the Old Town, the New Town, and Canongate, all pure.

From Leeds; two samples, obtained in the poorer districts, both pure, although the price charged for half an ounce of one of them was two pence only. This sample was not labelled; three applications were made at other shops, but the messenger could not obtain any, because he could not state for what use it was required.

From Leamington; one sample, pure.

From Leicester; one sample pure.

From Liverpool; two samples, both pure.

From Loughborough; one sample, pure.

From London; one sample from the north-west district, pure; one from South Belgravia, pure; two from Clapham, both pure; and one from Knightsbridge, pure.

From Manchester; one sample, pure.

From Matlock; one sample, pure.

From Newcastle-on-Tyne; two samples, both pure.

From Northampton; one sample, pure.

From Norwich; one sample, pure.

From Nottingham; three samples, all pure.

From North Shields; three samples, one of them said to have been obtained by the retailer from Newcastle. Upon examination it proved to be composed of ammoniated mercury and chalk. One gramme was heated in a tared crucible, and the ammoniated mercury driven off. When cold, the chalk weighed ·94 gramme equivalent to 94 per cent. of adulteration. The other samples are both pure.

From Rochdale; one sample, which was not adulterated, but contained a trace of peroxide of iron.

From Rhyl; one sample, pure.

From Sittingbourne; two samples, both pure.

From Shrewsbury; two samples, marked respectively A and B; specimen A is unadulterated, but contains a trace of peroxide of iron, B is pure.

From Scarborough; three samples, all pure.

From Stourbridge; three samples, all pure.

From Trowbridge; one sample, pure.

From Weymouth; one sample, pure, described by the sender as the only suspicious sample he could obtain in the place.

From Wolverhampton; one sample pure.

I venture to think that the result is very creditable to the members of our profession, because, in the majority of cases, the specimens were obtained in neighbourhoods where it might have been supposed that adulterated samples would be met with, indeed my Bristol contributor states that he obtained his specimens from a locality where he was sure to be able to find adulterated drugs. It also shows pretty clearly that the wholesale druggists do not in these days supply their customers with adulterated white precipitate.

To the medical profession, to ourselves, and the public, it is exceedingly satisfactory to find that the attention which the Pharmaceutical Society has directed to the diffusion of pharmaceutical knowledge among the chemists and druggists of this country renders it difficult for any adulterated drug to get into general circulation among us; on the other hand, it points to further vigilance and spread of pharmaceutical knowledge.

A CASE OF EXCISE INTERFERENCE IN THE SALE OF QUININE WINE. BY MR. CHARLES KERR (DUNDEE).

The subject I wish to bring under your notice is no new one, although I am not aware if it has ever been brought before the meeting of the Conference. It is, namely, the interference of the Excise with the sale of quinine wine.

Some two years ago, there was an article on the matter in the *Pharmaceutical Journal* noticing the case of Mr. Waters, British wine-maker, whose quinine wine the Excise would not allow to be sold except by parties having a British wine licence. Mr. Waters's preparation was sold principally by grocers and Italian warehousemen, who are generally licensed for such articles as British wines; but some chemists were customers to Mr. Waters for his quinine wine, and it was these the Excise would not allow to sell it without a license. A correspondence took place between Mr. Waters and the Board of Excise on the subject, and after several letters the Board came to the conclusion that a patent medicine license and stamp was required for the sale of Waters' quinine wine. I am not aware if these instructions were complied with, nor if the article is still in the market; most of those present will remember the case of Waters, so I need not occupy time in further referring to it.

I wish to bring before the meeting the matter in a new

light as it occurred to myself some time ago. For three years I have made considerable quantities of quinine wine, composed of orange-wine and quinine, one grain to the ounce, in fact, the very formula now given in the new edition of the Pharmacopœia. I had not long commenced making it when I received a visit from an Excise Officer, who told me he thought I had to pay a license for selling quinine wine. I told him he must be wrong; he alluded to the case of Waters, but I explained that there was no analogy in the two cases; I was a chemist and could make and sell quinine wine as well as any other medicated wine; I did not sell it as a beverage, but as a medicine, and it was labelled "Tonic medicine." We had a long talk on the matter, and to satisfy himself the Officer said he would report the case, and purchase a bottle of my quinine wine and send it for examination to the London Board, which he accordingly did, and I was somewhat startled a short time afterwards by receiving a summons to appear before a local justice of the peace to answer the charge of being a retailer of sweets without a license. Penalty £50., and to appear in fourteen days.

I was quite taken aback at receiving this, and not being desirous of seeing my name flourishing in the newspapers, in a case before a J. P. for defrauding Her Majesty's Revenue, the nature of which case the general public could not well understand, also knowing that Excise laws were peculiar, and not to be fought against with impunity, I thought it best to lay the case before the London Board, which I did in the following letter, and which will explain the case more fully than anything I could say further on the matter.

"The Hon. the Board of Inland Revenue.

"Honourable Sirs,—Much to my surprise I have been served with a summons to appear before a justice of the peace on the 14th of this month, to defend and answer to the charge of being a retailer of sweets without a license, and I understand the charge is made because I prepare and sell quinine wine, an article which most chemists and druggists make and sell as well as other medicated wines. Medicated wines in general are made from sherry, and chemists have never been required to take out a foreign wine license for the making of such. Quinine wine is generally made from orange wine, and with this, I partly make it, and I understand this is the reason I am served with the summons to answer the charge of being a retailer of sweets. My quinine wine is a bitter preparation and sold only as medicine, being frequently prescribed by medical men of Dundee, and every bottle sold is labelled medicine. I enclose one of the labels used.

"Some time ago the Supervisor of Excise of this district called my attention to a paragraph which appeared in the newspapers in regard to Waters's quinine wine; an article which your Honourable Board had decided, required a British wine license for its sale, but as it was an article sold by grocers, Italian warehousemen, and general shopkeepers, I expressed my opinion to the Supervisor that your decision did in no way interfere with the sale of quinine wine as prepared and sold by chemists and druggists. I told him I had been 17 years a chemist, and during all that time I never heard of a chemist paying a wine-license for making medicated wines, and in every establishment I was connected with quinine wines as well as other wines were made. I denied my liability to a license, upon the plea that there was no precedent of a chemist paying such a license, while hundreds of chemists who had been years in business for the months I had been, regularly made the same article. The Supervisor, however, thought that my quinine wine was subject to a license, and to test the matter, he would purchase a bottle and send it to your Honourable Board for examination; accordingly, a bottle of my quinine wine was got from my shop by an Officer of Excise; I was present during the purchase, and knew that it was bought for the purpose of being sent for examination. No further notice was given on the matter, until the summons was handed into me to appear before a justice of the peace for a breach of the excise law, with only 14 days allowed me to defend and consider such a new and important point affecting the whole chemists of the country. I fully expected that I would have received notice after the examination of my preparation, whether it was an excisable article or not; however, no such notice was given me, but I am at once summoned to appear before a justice of the peace for breaking the law which, I truly confess, I was ignorantly doing. I have been only a short time in business for myself, and would never think of breaking any known law. Now that I find my quinine wine is liable to license, I will take out the license for it, and I humbly beg your Honourable Board will consider my case favourably, and please to withdraw the summons requiring me to appear before a justice of the peace.

"I am, Honourable Sirs,

"Your obedient servant,

(Signed) "CHARLES KERR."

You will observe from the foregoing letter I did not want to fight the matter with the Board, there was no time for that; I was anxious I should not appear before a justice; and would rather pay the license, however unjust I might think it. To my letter, I received the following answer:—

"Inland Revenue, London, 11th June, 1866.

"Sir,—I am desired to acquaint you, in reply to your application of the 8th inst., that the information pending against you will be withdrawn on your paying the expenses, and taking out a sweets' license.

"I am, Sir,

"Your obedient servant,

(Signed) "ADAM YOUNG, Assistant Secretary."

I took out the license, paid expenses, and so ended my trouble with the Excise; since then I have paid the yearly license twice, it is not a great sum, 22s. yearly; yet there is a principle involved in the matter affecting every chemist in the country, which I think ought to be set right; so I have thought by bringing it before the present meeting it might be discussed to some advantage. I have only introduced the matter for discussion, so will not occupy your time by giving any lengthy remarks of my own, but it must be evident to all, that chemists stand in an equivocal position to the Excise, when they can be made to pay license for making medicated wine with British wine, and not made to do so for making them with foreign wines; why not make us pay £10. 10s. for making antimonial or ipecacuan wine? There is something radically wrong, when we are obliged to pay a license for making a preparation authorised by the New British Pharmacopœia, and I am curious to know whether the Honourable Board are aware of the new turn matters have taken, and what their opinion now is. I would, therefore, propose that the Excise Board be communicated with on the subject, and with that proposal I now leave the matter in the hands of the meeting.

ON BURGUNDY PITCH.—BY DANIEL HANBURY.

The authors of the British Pharmacopœia have defined Burgundy Pitch (*Pix Burgundica*) as *a resinous exudation from the stem of the Spruce Fir, Abies excelsa*, D.C. (*Pinus Abies*, L., *P. excelsa, Lam.*), *melted and strained*. They have thus followed the London College of Physicians, which for nearly a century and a half has included this substance in its Materia Medica, indicating in the later editions of its pharmacopœia a similar botanical origin.

On the Continent the term *Pix Burgundica* (which is not frequently applied) appears to have a less definite signification than with us, being used synonymously with *Resina alba*, to designate the resins of various coniferous trees after purification, by being boiled in water and strained. The following description is translated from one of the more recent and esteemed works on pharmacology, that of the late Dr. Berg:—*

"White Resin, White Pitch, Yellow Resin, Yellow Pitch (*Weisses Harz weisses Pech, gelbes Harz, gelbes Pech*), Resina s. Pix flava s. citrina

"It is obtained by melting common resin, with the frequent addition of water, and subsequently straining. According as the melting has lasted a longer or shorter time, the resin remains paler in colour, and constitutes *White Resin*, or becomes darker, and is called *Yellow Resin*, and is thereby richer or poorer in oil of turpentine. The first, owing to the water which it contains, is almost entirely opaque, white, brittle, and becomes gradually yellow. The second, through the formation of a little colopholic acid, by reason of the longer melting, is of a yellow, dark, yellow, or brownish, colour, very brittle, here and there clear, and has a conchoidal, glassy fracture. An inferior kind, called *White Pitch*, is obtained from the resin that is first produced in the manufacture of tar, and has a brownish yellow colour. The true *Burgundy Resin* or *Pitch*, (*Resina s. Pix Burgundica*) is the similarly prepared resin of *Picea excelsa*

* *Pharmazeutische Waarenkunde*, Berlin, 1863, p. 566.

and *Pinus Pinaster*, which is brought into commerce in the form of dull, dirty-yellow, brittle masses, of a glassy fracture, softening in the hand. Ordinary Burgundy Pitch is White Resin, which has been gently melted for a short time without the addition of water, so that it is in fact freed from a part of its water, but has not yet acquired the brown colour of colophony."

In France, as in England, the term *Burgundy Pitch* (*Poix de Bourgogne*) is by the more accurate writers restricted to the melted and strained resin of the spruce fir, of which substance the following description is given in the last edition of the Codex:—

Translation.—Burgundy Pitch is of brownish yellow, solid and brittle in the cold, flowing when warm, very tenacious, having a peculiar odour, and an aromatic taste without bitterness; not completely soluble in alcohol in the cold. There is frequently substituted for it another product called white pitch (*poix blanche*), prepared with *galipot*,* or a mixture of yellow resin and Bordeaux turpentine, melted and mixed with water. This artificial pitch has a strong smell of Bordeaux turpentine, and a very marked bitter taste. It is entirely soluble in alcohol.

Where is then true Burgundy pitch manufactured? Is it actually met with in commerce? By what characters may we judge of its purity?

The authors of the British Pharmacopœia mention it as a production of Switzerland, where the spruce fir is certainly found in great abundance. But I have it upon excellent authority—that of my friend, Dr. Flückiger, of Bern—that at the present time no terebinthinous resins are collected in Switzerland for commercial purposes. Neither is true Burgundy Pitch produced in France, as its name would seem to indicate, *Pinus maritima*, Lamb. being, in fact, the only tree the resin of which is collected in that country as an industrial product. The name *Burgundy Pitch* seems, in fact, to be a complete misnomer, no such substance having been ever produced in Burgundy. Pomet, writing in 1694, thus speaks of "*Poix grasse ou Poix blanche ou Poix de Bourgogne*:"—

"On fait fondre le Galipot avec tant soit peu d'huile de Terebenthine, et de la Terebenthine commune, et ensuite c'est ce que nous appellons *Poix grasse*, ou *Poix blanche de Bourgogne*, à cause que l'on prétend que la meilleure et la première s'est faite à saint Nicolas en Lorraine: ce qui est tout le contraire d'aujourdhui; car la meillure poix grasse vient de Hollaud et de Strasbourg, d'où nous la faisons venir."

Knowing these facts, and having failed to gather any precise information from pharmacological writers as to the districts where the resin of the spruce fir is an object of industry, it was with some interest that I examined the various collections of forest products in the French Exhibition. Nor was I disappointed, for among the contributions from Finland, I discovered a suite of specimens illustrating this very subject. Baron Linder, of Svarta, near Helsingfors, is the exhibitor of the resin of the spruce fir in two forms, namely:

1. The crude resin as exuded from the trunk of the tree, and described in the following words:—"*Barras* ou "gomme conerète, adhérente aux sapins (*Pinus Abies*). "Produit brût servant à la fabrication de résine, etc., "etc. Prix 12 francs les 100 kilogr."
2. The resin purified by melting in contact with the vapour of water, and straining. It is thus described on the label attached to the specimen:—"*Résine jaune* "cuite (à vapeur d'eau à chaleur modérée) de *barras* de "sapin (*Pinus abies*). Prix 40 francs les 100 kilogr.: "production annuelle 35,000 kilogr."

Of these two resins, the first is not found in English commerce; the second constitutes genuine Burgundy pitch, precisely such as may be bought in the London market. The quantity of this purified resin produced annually, it will be observed, is very considerable, being equivalent to 77,000 lb. or more than 34 tons weight. Baron Linder is likewise an exhibitor of the crude resin of *Pinus sylvestris*, of the same in a purified state, of oil of turpentine, Iceland moss, and a few other productions of Finland.

The Paris Exhibition shows that true Burgundy pitch is also produced in Germany. Mr. J. G. Müller, of Löeherberg, near Oberkirch, in the Grand Duchy of Baden, has taken the trouble to exhibit an instructive and complete series of large specimens in illustration of the products of the spruce fir, comprising:—

1. Portion of a stem of *Abies excelsa*, about four feet long, treated for the production of resin. This stem has had cut in it, longitudinally, at equal distances, four even and regular channels, an inch and a half wide, and of the same depth; from the sides of those channels the resin exudes, and is scraped off with an iron instrument made for the purpose.
2. The crude resin (*Roh-Harz*), as scraped from the stem, contained in the original triangular bark-basket used in the country.
3. *Wasser-Harz.* This has been obtained by boiling in water and pressing the crude rosin. It is grey and opaque; contains much water, and is identical with an impure but genuine Burgundy pitch sometimes found in the London market.
4. *Gereinigtes Fichtenharz, Résine purifiée.* This is No. 3 in a purified condition, or, as we should call it, *True Burgunyd Pitch* in its purest condition.

In addition to these specimens, Mr. Müller also exhibits samples of rosin prepared for the use of brewers, who in Germany employ resin (*Brauerpech*) for coating the inside of beer casks.

Another exhibitor of genuine Burgundy pitch is Mr. Theodor Müllner, of Hinter Brühl, Post Mödling, near Vienna, who shows *Fichtenharz*, or crude resin of the spruce fir, and *Fichtenpech*, which is the same in a purified condition. The latter may be regarded as a type of good Burgundy pitch.

These contributions to the Paris Exhibition show that the resin of the spruce is collected for trade purposes in Finland and in Germany, and in the first-named country upon a very considerable scale. It does not, however, appear that it is ever termed *Burgundy pitch* in the places were it is produced.

Although genuine Burgundy pitch (usually, it must be admitted, in a very impure state) has been always obtainable in the London market, it is rarely found genuine in the shops, an artificial compound being very generally supplied in place of it.

This artificial Burgundy pitch is of most variable appearance. In examining eight samples of it, I find that in my notes I have described it as dull tawny, bright tawny yellow, bright yellow, brilliant orange yellow, or bright orange brown. Some samples have a dull, wax-like fracture, others a more or less shining or conchoidal fracture. Some exhibit when broken numerous cells, containing air or water, others are more compact. All are more or less opaque, but become transparent on the surface in the course of time by the loss of water. All the samples have a weak, terebinthinous odour, not one possessing the fragrance of true Burgundy pitch. All are free from bits of stick and such-like impurities, which are frequently found in the genuine drug.

I am not in the secret of the manufacture of this artificial Burgundy pitch, for which, indeed, each maker must have his own formula. According to common report, however, it is formed by melting together common resin with palm oil, or some other fat, water being stirred into the mixture to produce an opaque appearance. In examining the characters of genuine and spurious Burgundy pitch, I have noted the following differences:—

TRUE BURGUNDY PITCH.	ARTIFICIAL BURGUNDY PITCH.
Colour, dull yellowish brown; fracture, shining, conchoidal; translucent; some samples contain much water, and are opaque, and of a dull grey colour, and require straining to free them from impurities.	Colour usually more brilliant than that of the true Burgundy pitch.
Odour peculiarly aromatic.	Odour weak and hardly aromatic.
Not wholly soluble in alcohol of ·838, but leaves a small amount of fine white flocculent matter.	Still less completely soluble in alcohol of ·838.
Placed in contact with double its weight of glacial acetic acid in a vial, is dissolved with the exception of a small amount of flocculent matter.	Similarly treated forms a turbid mixture, which soon separates into two layers,—a thick, oily liquid above, and a bright solution below.

The foregoing characters apply to most of the artificial Burgundy pitch which I have examined, and may be useful, so far as they go, for distinguishing the genuine from the spurious. The odour of true Burgundy pitch is in itself an excellent criterion which cannot be conveyed by description. Solubility in glacial acetic acid serves to reveal the presence of fatty matter, which is a common, perhaps an essential ingredient in the artificial Burgundy pitch made in this country.

* *Note by Translator.*—*Galipot*, dry resin, collected in France from the trunks of *Pinus maritima*, Lamb.

From what has preceded may be deduced the following

CONCLUSIONS.

1. True Burgundy pitch is the melted and strained resin of *Abies excelsa*, D.C.
2. An artificial compound is usually sold in lieu of it, both in this country and on the Continent.
3. True Burgundy pitch is produced on a large scale in Fiuland, also of very fine quality iu Baden and in Austria.
4. True Burguudy pitch differs palpably from the artificial, aud may be easily distiuguished from it.

ANALYSIS OF ORDINARY COMMERCIAL SPECIMENS OF JALAP, SHOWING THEIR RELATIVE VALUE IN PROPORTION OF RESIN OF JALAP, COMPARED WITH MARKET PRICE. BY MR. ALFRED SOUTHALL (BIRMINGHAM).

	Description.	Resin, per cent.	Market Price. s.	d.	
No.	1...Jalap, Tops ...	5 ...	0	4	per lb.
„	2... „ „ ...	12 ...	0	5	„
„	3... „ Tampico ...	9½ ...	0	10	„
„	4... „ „ ...	10½ ...	1	0	„
„	5... „ „ ...	30½ ...	1	0	„
„	6... „ „ ...	29 ...	1	6	„
„	7... „ „ ...	12½ ...	1	6	„
„	8... „ „ ...	33¾ ...	2	0	„
„	9... „ „ ...	27 ...	2	0	„
„	10... „ Vera Cruz ...	15½ ...	4	0	„
„	11... „ „ ...	17½ ...	4	0	„
„	12... „ „ ...	17¼ ...	4	0	„
„	13... „ „ ...	12½ ...	4	0	„
„	14... „ „ ...	23 ...	4	4	„
„	15... „ „ ...	20¼ ...	4	6	„
„	16... „ „ ...	16¾ ...	4	10	„

The importance of maintaining a uniform medicinal value in the drugs ordered by the Pharmacopœia cannot be overestimated. The British Pharmacopœia has, in the instances of opium, cinchona bark, and scammony, given a standard value for each of these remedies; but I think it might with great advantage have included some other drugs, and amongst the rest the subject of this analysis. That market prices are frequently no guide to the pharmaceutist, the analyses which were offered at the last meeting of this Conference of various samples of opium and scammony sufficiently testified, and the additional proof offered by the specimens of jalap herewith amply confirm the statement.

In order to ascertaiu the medicinal value of the supplies of jalap as found in the shops of pharmaceutists I procured five specimens of powdered jalap at different establishments, and found the result in per-centage of resin as follows:—

No. 1. 13 per cent. of resin.
„ 2. 15 „ „
„ 3. 9½ „ „
„ 4. 16½ „ „
„ 5. 17 „ „

The commercial value of jalap imported from Tampico is much inferior to the kind imported by way of Vera Cruz; but an average of seven samples of each kind here analysed show that the Tampico is richer in resin than the Vera Cruz, the average in the one case being about 22 per cent., and in the other 17¼ per cent.

I have made an experiment with the purgative effects of the two varieties, and find them much the same. The resin from Tampico jalap is somewhat darker than that from the Vera Cruz variety, and has a distinctive peculiarity of smell, but I have not discovered any difference in chemical character.

NOTE ON EFFERVESCING CITRATE OF MAGNESIA.

BY MR. G. DYMOND (BIRMINGHAM).

Whilst this Conference is engaged in the laudable endeavour to raise the status of English pharmacy; and whilst the talk of rival societies is the protection and encouragement of commercial and scientific pharmacy,—it is a cause of some discouragement that the first principles of sound morality and success are frequently set at defiance by pharmaceutists.

The pleasing deception which is daily practised in the sale of the various popular granulated effervescing compounds, is the instance which I wish here to adduce, because these compounds, being almost without exception known by names which do not express their composition and real character, have met with a success which must raise the indignation of every lover of honest pharmacy. The so-called "Granulated Effervescing Citrate of Magnesia," whilst it is the most popular of these compounds is, at the same time, the most fallacious, because it usually contains no citrate of magnesia at all, and I venture to think that the consciences of many pharmaceutists must, with my own, have long protested against such a misnomer.

Anxious as we are to promote the growth of true pharmacy, its welfare is, I hold, in jeopardy whilst we tacitly recogniso such departure from correct chemical nomenclature, and much more from those obligations which we are under to the pure truths of science and morality. If the higher objects of scientific pharmacy are to be reached, the growing responsibilities of pharmaceutists must keep pace with scientific truth, else the "unerring instinct" of the people will find us out, and rate our professions at their proper value. It is no alleviation to know that the public is knowingly deceived, or that there have been precedents for such a practice, or that these false compounds supply a want, which is appreciated even under a wrong name. Our work is dignified and honourable in proportion to the integrity with which we pursue our investigations, and to the honesty and exactness with which the results of our labours are given to the world. But the application of the name of a definite chemical production to a mixture which bears no real resemblance to it, is a departure from strict scientific integrity, which I think this conference will do well, with all its vigour, to condemn.

The writer was pleased to hear that an analysis of several samples of granulated effervescing preparations, had been promised to this meeting, and he trusts that though not presented at this confereuce it will be ready hereafter. The task of making such an analysis is, however, in part spared by the candid acknowledgment of some large manufacturers of so-called "Effervescing Citrate of Magnesia," that their productions contain no such constituent whatever.

The advantages of a true citrate of magnesia have, I think, not beeu sufficiently appreciated, but it is clear that the exchange from a composite salt prepared from chance formulæ, of different therapeutic values, to one which is a definite chemical productiou, aud which has therefore a definite therapeutic value, has many advantages to recommend it.

The specimen of saccharated effervescing citrate of magnesia, which is placed upon the table, is made by the mechanical combination, in oquivalent quantities of carbouato of magnesia aud citric acid, together with the addition of 15 per cent of sugar. It fulfils the conditions required in this preparation of brisk effervescence duriug the discharge of the carbonic acid, and a uearly bright subsequent solution, and it is presented in the belief that this atteupt will be appreciated by this confereuce, in vindication of thoso principles of morality as applied to the ethics of pharmacy which it should be our aim to maintaiu.

I. REPORT ON THE ADVANTAGES OR DISADVANTAGES OF THE EMPLOYMENT, IN PHARMACY, OF NITRIC ACID, OF SPECIFIC GRAVITY 1·5.

II. REPORT ON THE NITRO-HYDROCHLORIC ACID OF THE BRITISH PHARMACOPŒIA, AND THE CHANGES IN IT ON KEEPING.

BY W. E. HEATHFIELD, F.R.G.S.

The inquiry proposed iu reference to the first of these two subjects having been rendered supererogatory, in consequence of the change prescribed in the British Pharmacopœia which has appeared since the announcement of these questions, I pass it over with the commeut that it has been difficult to procuro nitric acid uniformly of the gravity of 1·5, that it is very rarely free from a considerable quantity of nitrous acid, as evidenced when the acid is poured into water with a view to dilution, that it is uncertain in strength

from its tendency to decompose, and that it is inconvenient to pack, dangerous in transit, and unmanageable in use. The acid of the British Pharmacopœia of 1867 is, doubtless, an excellent substitute, containing as it does 70 per cent. of monohydrated acid, this water being combined with the acid as a base, whilst the accompanying 30 per cent. are in such a state of combination as to be termed the constitutional water. It undergoes no change on keeping.

Referring to the second inquiry—the nitro-hydrochloric acid, and the changes in it on keeping—it is to be observed that since the institution of these experiments, the British Pharmacopœia of 1867 has been presented, with an alteration in the formula and directions for the production of this acid, and as it differs materially from that adopted in the previous publication—that of 1864—I subjoin the two formulæ for comparison.

ACIDUM NITRO-HYDROCHLORICUM DILUTUM. B. P. 1864.

Nitric acid, S. G. 1·5 . .	2 fluid ounces.
Hydrochloric acid, S. G. 1170 .	4 fluid ounces.
Distilled water	26 fluid ounces.

Add to the water first the nitric acid and then the hydrochloric acid. Mix, and preserve in a stoppered bottle.

Tests. Specific gravity 1·074; six fluid drachms require for neutralization 93·83 measures of the volumetric solution of soda.

ACIDUM NITRO-HYDROCHLORUM DILUTUM. B. P. 1867.

Nitric acid, 1·42 . . .	3 fluid ounces.
Hydrochloric acid, 1·16 . .	4 fluid ounces.
Distilled water . . .	25 fluid ounces.

Mix the acids, and allow them to remain for twenty-four hours in a bottle, the mouth of which is partially closed, then add the water in successive portions, shaking the bottle after each addition, and preserve the mixture in a stoppered bottle.

Characters and tests. Specific gravity 1·074; 352·4 grains by weight (six fluid drachms) require for neutralization 920 grain measures of the volumetric solution of soda.

The specific gravity of the acid, as prepared by the directions of the Pharmacopœia of 1864, is 1·070, and 352·4 grains require for neutralisation 93·88 grains of volumetric solution of soda, of the standard ordered in that work. The acid keeps well in ordinary temperatures, and appears to have little tendency to change.

The nitro-hydrochloric acid mixed, as directed in the Pharmacopœia of 1867, yielded the following results:—The specific gravity of the two acids on admixture, and after cooling, was 1·277; but on standing for twenty-four hours as directed was 1·268. On adding the quantity of water for the production of the dilute acid, the specific gravity was found to be but 1·063, and 352·4 grains, or six fluid drachms, required but 840 measures of volumetric solution of soda for neutralisation.

This experiment having been conducted with a view to determine the loss of hydrochloric acid consequently upon leaving the mixed acids for twenty-four hours, the operation was conducted so that on the mixture of the two acids in a loosely-stoppered bottle, the escaping chlorine should be collected under a bell glass, or should be received into a solution of potassa. This solution at the end of the twenty-four hours was subjected to estimation by means of nitrate of silver, and was found to be charged with chlorine, which, calculated as hydrochloric acid, was found to be in such a proportion as to have diminished the strength of the nitro-hydrochloric acid by about 3 per cent. The loss of nitric acid was not estimated.

Proceeding somewhat differently, with a view to the production of dilute nitro-hydrochloric acid, the following process was adopted: the proportions of acids ordered in the Pharmacopœia of 1867 were united, and, on cooling, the specific gravity was 1·277. The water was then added, and the specific gravity was 1·074, thus corresponding to the theoretic gravity of the Pharmacopœia of 1864. 352·4 grains required 1,000 measures of volumetric solution of soda. This experiment was made on the 31st May, and the tests were again applied on the 29th August, when no variation had taken place, thus proving that the diluted acid was not impaired by keeping for a moderate length of time.

So carefully have the framers of the British Pharmacopœia performed their task that it would ill become an experimentalist to question the value of formulæ which are now so well standing the test of pharmaceutic experience, but whatever may be the estimation in which the process for the production of diluted nitro-hydrochloric acid is held, it is clear that it can scarcely attain the result desired, viz., uniformity. If the acids are mixed as directed, there must necessarily be loss, for it is not easy to imprison the escaping vapours, and an explosion would be likely to occur in a bottle well stoppered; in one not so, as directed, the escape of vapours is considerable, as indicated by the experiments detailed in this paper.

At the second sitting, which commenced at half-past ten on Wednesday, September 4th, the following communications were brought forward:—

ON A NEW ALCOHOLOMETER. BY R. REYNOLDS, F.C.S.

The instrument, exhibited and described by Mr. Reynolds, was of French origin, and was introduced for the ready determination of the strength of wines and spirituous mixtures. The main part of the instrument consists of a graduated capillary tube, and by observing the height at which the liquid stands in the tube, it is easy to calculate the specific gravity by the aid of proper tables. The instrument is only applicable to light wines and spirituous mixtures free from sugar and extractive matter.

NOTES ON THE USE OF THE MICROSCOPE, AND ITS CRYSTALLOGRAPHICAL APPLICATION. BY W. W. STODDART, F.G.S.—*Abstract*

During a brief sketch of the history of the microscope, the author contrasted the power possessed in the present day with that in the earlier days of Demisianus, Pliny, and Seneca, and remarked that it was a humbling confession to make, that they made more discoveries than have since been made by superior apparatus. He warned his hearers from substituting the results of inference for those of actual observation. He then mentioned the use that the microscope was to the chemist, mineralogist, and geologist, and gave an example of what might be done in a short space of time by the pharmaceutist.

After a short description of the principles of crystallography the author mentioned six methods by which crystals may be obtained for microscopical purposes, viz., deposition, precipitation, fusion, galvanic agency, sublimation, and evaporation, giving examples of each.

It was to the latter method that the author confined his paper.

He described a plan by which, by the simple measurement of crystalline residue by the microgoniometer, it was possible to recognise any soluble salt, and showed a specimen table of what the author termed predominating angles of several substances.

The instruments which the author used, viz., Ross's and Leeson's goniometers, were then described and their method of working explained.

The whole of the paper was illustrated by numerous drawings and diagrams.

NOTES ON TINCTURE OPII AND LIQUOR OPII SEDATIVUS. BY MR. ALFRED SOUTHALL (BIRMINGHAM).

In continuation of a subject which was brought forward at the last meeting of the Conference, viz., the analysis of various specimens of ordinary commercial opium: in order further to show the extremely uncertain medicinal value of different samples, I have since examined a variety of specimens of tincture of opium, some of which have been kindly forwarded to me by Dr. Attfield. These specimens were, I believe, procured indiscriminately from the establishments of various pharmaceutists, and show a variation in strength which may well rather alarm the prescriber for the welfare of his patient.

Taking the standard of strength required by the British Pharmacopœia, which states that 100 grains of opium should yield at least 6 to 8 per cent. of morphia, the consequent strength of tincture of opium B.P. should be not less than 0·5 per cent. of morphia. The following is my result of nine samples of tincture:—

No. 1 specimen contained 0·3 per cent. of morphia.
,, 2 ,, ,, 0·5 ,, ,,
,, 3 ,, ,, 0·6 ,, ,,
,, 4 ,, ,, 0·5 ,, ,,
,, 5 ,, ,, 0·2 ,, ,,
,, 6 ,, ,, 0·5 ,, ,,
,, 7 ,, ,, 0·4 ,, ,,
,, 8 ,, ,, 0·7 ,, ,,
,, 9 ,, ,, 0·5 ,, ,,

Good commercial opium, such as is commonly found in the English market (as our analysis last year showed), contains frequently as much as 10 to 13 per cent. of morphia; and the Pharmacopœia laying no restriction upon a maximum yield of morphia opens a wide door for a great diversity in the strength of its opium preparations, so that a tincture yielding from ½ to 1 per cent. of morphia is within the Pharmacopœia limits.

The letter which was lately addressed to the *Pharmaceutical Journal* by Mr. J. T. Miller, of Sheffield, on the value of the British Pharmacopœia tests for opium, is well worth perusal.

Although Liq. Opii Sedativus is not officinal, yet this form of administering opium is scarcely less important than the tincture. It is, however, interesting to notice in the analysis of the eight following samples that the same wide diversity exists.

No. 1 specimen contains ·6 per cent. morphia.
,, 2 ,, ,, 1·2 ,, ,,
,, 3 ,, ,, ·7 ,, ,,
,, 4 ,, ,, 1·0 ,, ,,
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ON THE ELECTRICAL RESISTANCE OF THE FIXED AND VOLATILE OILS. BY T. T. P. B. WARREN (ABSTRACT).

In this paper the author described a series of experiments upon the resistance of certain oils to the electric current, and suggested that such experiments might be turned to practical account in determining the purity of oils. The apparatus used was represented by a large diagram.

ON GLYCELÆUM: A PROPOSED BASIS FOR OINTMENTS. BY T. B. GROVES, F.C.S.

Some years ago, when stirring together on my plate a mixture of mustard, sugar, vinegar and olive oil, I observed a tendency towards combination, and on persevering with the process I eventually obtained a semi-transparent paste of soft consistence, which, when mixed with a further proportion of vinegar, gave an elegant emulsion. I subsequently found that by modifying my method I could obtain this result very readily. Since then I have, as occasion required, prepared a very useful salad paste, which, being composed of the simple materials common to all salad dressings, formed a kind of universal basis, and being destitute of vinegar, kept well for a length of time.

It was made thus:—

Take of Mustard	...	... ʒiij
Syrup	...	... ʒj
Olive Oil	...	... ʒiij

Mix the mustard and syrup in a mortar to a smooth paste, then add gradually, with constant trituration, the olive oil. When nicely made, it forms a soft paste which, after a few days' rest for the elimination of air bubbles, becomes nearly transparent. When mixed by gradual addition with vinegar and flavouring ingredients to taste, it forms, to my mind, an excellent and simple salad dressing. This is not strictly pharmaceutical, but it was out of this arose the idea of the subject of this paper—Glycelæum.

It of course soon occurred to me that other oils besides olive could be so emulsed, and that compounds so obtained might be made to serve the purposes of the surgeon or of the doctor—might be used to favour the assimilation of oil, or as dressings for wounds and such like. Mustard was, of course, inadmissable for either purpose. I must here observe that if the ingredients for the salad mixture above referred to be made much thinner than in the recipe given, it will be impossible to mix them in a mortar by trituration, the same also if a much larger proportion of oil be used; but combination may readily be effected by stirring, or rather "slicing," with a flexible spatula. The pressure of the pestle seems to squeeze out the air from the emulsion as soon as formed. This is on a par with what I and doubtless others have remarked—viz., that the common liniment containing vinegar, camphor, and turpentine emulsed with yolk of egg, is more readily mixed by simple agitation in a bottle than by working it in a mortar. The yolk must, of course, be thoroughly broken up, in order to destroy its structure and render it miscible with water.

To return from my digression. On making trial of the usual gummy substances, such as acacia and tragacanth, I found that this class of compound could not be formed by their aid; emulsions of the ordinary kind might be made, but not *paste* emulsions. The natural thing to do in such case was to separate in a pure form the emulsive principle contained in the mustard-seed and go to work with it; but before doing so I tried the finely powered farina of other oil seeds, such as linseed and almond, and was gratified to find that either will answer the purpose as well as mustard. I have no doubt that all the oil seeds, when deprived of their oil by pressure and then reduced to powder, answer equally well, though perhaps not all with equal power. The meal of decorticated pressed sweet almonds is that which I prefer and which I have used. Messrs. Barron, Harvey and Co., who express a good deal of almond oil, were kind enough to prepare for me a cake of this article. When powdered, it should be passed through a fine silk sieve—cypress or lawn; it refuses altogether to go through a fine wire sieve.

To prepare Glycelæum then:—

Take of Almond Meal	...	... ½oz.
Glycerine...	...	... 1oz.
Olive Oil ...	...	... 3oz.

Mix s. a. It may be effected in a mortar in the ordinary way up to nearly the end of the operation, but it is better, I think, to use the spatula and "slice" in the last addition of oil. It will then form a soft, semi-gelatinous paste, which, when mixed gradually with water or a watery fluid, forms readily an emulsion. The glycerine it contains being protected by the oil, it does not quickly deliquesce, though when exposed to the air for some time it does soften somewhat. It is, of course, unaffected by the ordinary temperatures of the body; if it were otherwise, its softness would be an objection to its use, as it is it leaves plenty of room for powdery admixtures of every kind.

This form may be varied in many ways—viz., the glycerine may be either pure or diluted, and may or may not in either case contain medicinal substances in solution. The olive oil may be substituted by another oil, or by a mixture of oils, or again by a balsam, an essential oil, or a hydrocarbon. All these may or may not contain other substances in solution. It is only essential to remember that the body, in the first place, must not precipitate emulsine; in the second place, must be a fluid. I have in several ways attempted to emulse lard. I have melted it and succeeded perfectly so long as it remained fluid, but if stirred after solidification the emulsion was at once "inverted," or, as Mr. Proctor styles it, converted into a "negative" emulsion, *i.e.*, the glycerine is emulsed in the fat, and not the fat in the glycerine.

The advantages I attribute to Glycelæum, as compared with ointments and with plasma, I imagine to be these. Ointments are greasy, prone to rancidity, do not "touch," in a strict sense, watery surfaces, and are not easily removed from the surfaces to which they become attached. On the other hand, they are cheap, they are fatty, and they are repellent of moisture.

The chief objection to plasma, of which I know little and therefore shall say little, is that it is dear. I have heard that in use it is troublesome, in consequence of its proneness to deliquescence. My other objection may seem fanciful, but it is fact that I cannot look with favour on a dressing for wounds that does not contain some fatty substance. Fats have been used for that purpose from the very earliest ages. The use of oil is mentioned and recommended in the Bible, and fat in some form or other is still universally employed by men, civilized or savage, in the dressing of external wounds. Its great and overwhelming advantage

is its cleanness in use. It is readily removed by sponging. It "touches" completely the parts to which it is applied. Glycelæum is cheap, it is easily sponged off, it "touches" wot surfaces and combines with them to form an emulsion, resembling somewhat in character the pus which Nature pours out for the defence of raw surfaces. It does not deliquesce to a disagreeable extent, nor does it soften by the heat of the diseased parts. It is capable. as I have indicated, of an immense amount of variation. I have never observed it to become mouldy or rancid from keepiug.

Glycelæum has been little tried as a remedy. I have had difficulty in finding persons to make trial of it. Dr. Tilbury Fox has, however, at Mr. D. Hanbury's suggestion, made some experiments with it, and reports "that he likes it very much. That it is a capital thing where it is a desideratum to get hardened parts into a more 'supple' condition." Although I can bring but one testimony in its favour, it must be allowed to be a first-rate one.

Still less trial has been made of Glycelæum as a vehicle for the administration of oils and balsams, though it would not be difficult to find stomachs that support with difficulty castor and cod-liver oils, and balsam of copaiba. As "oiled" melted butter is known to upset a weak stomach, whilst well made—*i.e.*, well emulsed melted butter—does not, it might be inferred that an emulsed oil would in some cases agree with the stomach when the plain oil would not. I am convinced of this, that the Glycelæum copaibæ, stiffened with powdered cubeb, would form a more elegant and a more supportable electuary than the nasty and imperfectly mixed mass one commonly meets with.

The uses of these bodies in the cosmetic art will not, I presume, be lost sight of.

I have already alluded to the fact that it is to the emulsine contained in these oil-seeds we must attribute the extraordinary emulsive power of these vegetable powders. (Certainly no organic principle has been more consistently named than it.) This I have proved experimentally by preparing some of the substance and trying it in its pure state. I found that 5 grains dissolved in one drachm of water would emulse into a jelly four drachms of olive oil (using the spatula, not the pestle). I prepared the emulsiue by digesting for a few hours powdered almond meal with tepid water, filtered and added to 3 measures of the filtrate, 5 measures of rectified spirit, collected the precipitate, and dried it at a temperature not exceeding 100°.

Having a few more minutes to spare, I will say a few words about the dietetic use of emulsine. I wonder it has not been pressed into the service of the infants. It is really a vegetable albumen, like it it is coagulable by heat, and contains a large proportion of nitrogen in a form available for the production of fibriu for the blood and muscles. It is contained, it is said, in almonds to the extent of 30 per cent., and is easily extracted therefrom. A tepid infusion of the meal, filtered, sweetened, and then evaporated at a temperature not exceeding 100° to a syrup, would not be unlikely to be a useful alimentary preparation.

ON A NEW VAPOUR BATH. BY R. REYNOLDS.

An admirable contrivance for readily obtaining a vapour bath, either simple or medicated, was introduced by Mr. Reynolds. By adapting to the boiler a flexible tube connected with a flat vessel of perforated metal covered with felt, fomentations can be applied to any affected part. We hope to describe this valuable instrument fully in au early number.

REMARKS ON A SPECIMEN OF SEAWEED CHAR. BY EDWARD C. C. STANFORD, F.C.S.

Mr. Stanford introduced to the meetiug an interesting specimen of charcoal, obtained by the carbonizatiou of tangle. This substance consists of the long stems of *Laminaria Digitata*, which are thrown up in great abundance on the western shores of the outer Hebrides; these are collected in the winter, and dried in the air. These, when first thrown up, are long, fleshy stems, seven to eight feet in length, and about the thickness of the wrist, but when dried present hard, horny, flexible rods, about the size of the finger. These when carbonized swell out into a highly porous charcoal, about three times their original volume.

The char contains about 40 per cent. of salts, free from sulphides. and very rich in iodine.

After lixiviation the residual char has the following composition. It varies slightly, and the average proximate analysis in the dry state is here given:

Carbon	50
Phosph. Lime	4
Carbonate ,, ...	20
,, Magnesia ...	6
Silicic Acid	5
Alumina	2
Sulphate Potash	5
Chlor. Sodium	5

And about 1·25 per cent. Ammonia.

It generally contains about 15 per cent. of water, which it is very difficult to separate, the charcoal having a most powerful affinity for moisture. Attention was called to the remarkable analogy between the chemical compositiou of this char and that of animal charcoal, which appeared to class it with that substance, and render it unlike any other char of vegetable origin. This char cannot be used for sugar refining on account of the large per-centage of carbonate of lime, but it possesses decolorizing and deodorizing properties superior, weight for weight, to the best animal char. Tested with solution of caramel, it decolorizes 25 per cent. more than animal char under the same conditions. It has been subjected to continued filtration of the thickest town sewage for several months without the least clogging, and its efficacy after this treatment remained unimpaired.

This communication was merely preliminary, the author promising the results of further investigations on this and other specimens of seaweed char.

The tangle char was brought before the meeting as a cheap and efficient substitute for animal char in its applications other than that of sugar refining, and its introduction excited an interestiug discussion.

In the course of the sitting, Mr. Daniel Hanbury gave a verbal description of the rare drugs that had been contributed by the Edinburgh Pharmaceutical Society.

SUPPER AT THE ROYAL HOTEL.

On Wednesday evening, September 4, the Dundee chemists and druggists entertained the non-resident members of the Conference at supper in the Royal Hotel. In the unavoidable absence of Mr. D. Russell, President of the newly-formed Duudee Chemists' Association, Mr. A. M. Levie presided, while Messrs. Hardie and Kerr acted as croupiers. The chairman was supported on the right and left by Professors Bentley and Attfield, and the several members of the Executive Committee. After the usual loyal and patriotic toasts, the Chairman gave the toast of the evening, "The British Pharmaceutical Conference." In the course of his remarks he made especial reference to its constitution and aim, and the good it was calculated to accomplish in advancing pharmacy, stimulating chemical research, and promoting union of action amongst the profession generally. Professor Bentley replied, thanking the chemists of Dundee for the interest they had displayed in furthering the objects of the Conference. He had had the greatest possible satisfaction in presiding at the meetings of the Conference in Dundee, the arrangements for which had been singularly complete. At all times he had taken a deep interest in pharmacy, and when he could do anything to help forward and establish it more firmly as a study, it would give him infinite pleasure. The other toasts on the programme were "The Pharmaceutical Society," by Mr. Kerr; "Pharmaceutical Education," by Mr. Schacht, replied to by Dr. Attfield; "The Trade and Commerce of Dundee," by Mr. Mackay, acknowledged by Mr. Doig; "The Visitors," by Mr. Hodge, responded to by Mr. Ainslie; "The Dundee Chemists' Association," by Mr. Young, coupled with the name of Mr. Hodge, the Secretary, who responded; and "The Union of Pharmaceutists," by Mr. Brady. The meeting was a peculiarly happy and enjoyable one, and separated with the usual vote of thanks.

PICNIC TO CRAIGHALL.

On Thursday morning, about eight o'clock, the chemists and druggists of Dundee, with the non-resident members of the Conference, and a few friends, the company numbering in all about seventy, left Dundee on an excursion to the far-famed Craighall, near Blairgowrie. On starting from the Post-Office in four wagonettes and a large omnibus, the party were loudly cheered by those who had assembled to witness their departure. After a very pleasant journey, during which the liveliest and happiest intercourse was indulged in, the excursionists arrived at their destination, where they spent several hours in strolling about the beautiful grounds. Having enjoyed themselves thus, they sat down in a group on the sward for a photograph, which was taken by Mr. Abbot, Dundee. At Craighall Home Farm a sumptuous repast was served—Mr. Russell (Dundee) presiding. Leaving Craighall at an early hour in the afternoon, the party next drove to Coupar-Angus, where they partook of a hearty tea, which was provided for them at the Royal Hotel. They again took the road, reaching home shortly before ten o'clock, all of them highly pleased with their jaunt. With the exception of some showers of rain of short duration the weather was favourable. In this pleasant manner the Dundee meeting virtually terminated; but as long as any members of the Conference remained at head-quarters, the Dundee Arms Hotel, their Dundee brethren continued to show them the greatest attention and kindness.

As we have before stated, we shall reproduce the leading features of the discussions at the Ward Chapel Rooms in our next issue.

UNITED SOCIETY OF CHEMISTS AND DRUGGISTS

EXECUTIVE COMMITTEE, AUGUST 5, 1867.

PRESENT:—The President (in the chair), and Messrs. Pass, V. P. Crotch, Beere, Buott junr., Warden, and Betty.

The minutes of the Executive Committee held on the 21st of June, were read over and confirmed.

Mr. Betty drew attention to the following errata in reference to the last Annual Report:—

Page 29—For the word "Sub-Secretary"—"Secretary" to be read; for the word "Executive"—"Society" to be read.

The Secretary gave notice of the nomination of Messrs. Garnett and Congreve for members of the Executive Committee.

It was moved by Mr. Buott jun. and seconded by Mr. Crotch, that bearing in mind the efficient services of Mr. Mathews, the past president of the Society, that he be invited to continue the same by acting as a member of the Executive Committee.

The secretary then laid upon the table copies of correspondence from Bolton, together with replies. In reference to which, the president expressed his willingness to visit Bolton at an early day and to communicate to Messrs. Blain, Harwood, Goodman, and other gentlemen, the unanimous wish of the Executive Committee for the resumption of active relations, meantime advising the local secretary as to the most expedient day of meeting, which offer, was accepted by the Committee with their best wishes for success.

Some discussion then took place as to the best manner in which to report the proceedings of the Executive Committee, and it was agreed—

That the monthly report of the Executive Committee furnished to the honorary secretaries of the district committees, be sent to them after the confirmation of the minutes at the following meeting.

A cordial and unanimous votes of thanks to the president for coming from Sheffield in order to preside, closed the proceedings of the meeting.

(*Copied from confirmed minutes*).

DEATH FROM CHLORODYNE.—We learn from the *Pall Mall Gazette* that a milkwoman at Harleston has been killed by a dose of undiluted chlorodyne, which was given to her by a lady for diarrhœa. The lady was under the impression that the chlorodyne had been prepared for use.

GAZETTE.

BANKRUPTS.

CLAY, RICHARD, Cromford, Derbyshire, chemist.
JENNINGS, NICHOLAS, Swansea, arsenic manufacturer.
ROGERS, B. W., Buckingham, chemist.
SCOFFERN, JOHN, Beresford-terrace, Kensington-park, medical practitioner.
WIMBLE, EDWARD, Mount Ephraim, Tunbridge wells, chemist.

PARTNERSHIPS DISSOLVED.

DUDLEY and STANLEY, Leicester, surgeons.
KITE and ILIFFE, West Bromwich, surgeons.
PAGE and BARRITT, Upper-street, Islington, homœopathic chemists.
YATES and LEATHER, Bolton, chemists.

SCOTCH SEQUESTRATION.

GOULD, G. and P., and Co., Glasgow, drysalters

A. B. C.—Barlow's "Manual of the Practice of Medicine" (Churchill), 12*s.* 6*d.* Coplaud's "Dictionary of Practical Medicine" (Longmans), 36*s.*

J. R. (Bolton).—Sulphite of lime, glycerine, and sugar of milk are among the agents that have been proposed for preventing the fermentation of syrups.

Lime Juice and Glycerine.—We believe that the preparation sold under this name is usually a mixture of lime-water and olive-oil with some suitable perfume. The name certainly does not express its composition, and ought to be rejected as a bit of quackery.

FARADAY AND THE ATHENÆUM CLUB.—In 1824 the Athenæum Club was formed for the association of persons of scientific and literary attainments, artists, and noblemen and gentlemen, patrons of science and letters. The first place of meeting was a small house in Waterloo place. Faraday was its first Honorary Secretary, and the writer occasionally carried the council books from the Royal Institution to the club-house. Faraday recommended his old friend Mr. E. Magrath as Secretary, and this gentleman occupied the post for many years.—*From Personal Recollections of Faraday in "The Laboratory."*

INK POWDERS.—The case of Dowthwaite *v.* Wimble and Nutt, lately tried at the Croydon Assizes, was an action to recover compensation for an alleged infringement of a right said to be held by plaintiff with respect to the manufacture and sale of a well-known marking-ink called "Dowthwaite's Improved British Iuk Powder," used for marking hop pockets. The result of the action was to establish the right of Messrs. Wimble and Nutt, by purchase of the receipt from the original inventor, John Dowthwaite, to manufacture and sell the valuable article known as "Dowthwaite's Improved British Ink Powders;" and, with a view of preventing further litigation, Messrs. Wimble and Nutt have issued a caution, warning the public against the infringement of their right.

A GREAT DISCOVERY—HOW CELEBRATED.—In the autumn of 1821, Faraday repeated with great care the experiments of Ampère on the mutual action of magnets and electric currents, and was eventually led to the discovery of electro-magnetic rotations. The experiments were mainly carried on in the battery-room, Hare's calorimeter being much used as the source of electricity; and many were the devices resorted to with the view of showing the rotation of a conducting wire round a magnet, and that of a magnet round a wire. The writer was by Faraday's side when the two rough arrangements began to work. He can see the face of the experimenter now, as it appeared forty-six years ago, beaming with joy—a joy not unmixed with thankful pride—when the magnet commenced to move round the wire and the wire round the magnet. Well does he remember the exclamation, "There they go! there they go! we have succeeded at last!" After this great discovery Faraday considered that he was entitled to a little recreation, and to please the writer he suggested a visit to Astley's Theatre. There was a crush at the pit entrance, and the conduct of a rough fellow who subjected the writer to some unnecessary squeezing excited Faraday's anger. He ordered the fellow to behave himself, unless he wished to get into trouble, and he appeared quite ready to support his words by thumps.—*From Personal Recollections of Faraday in "The Laboratory."*

THE CHEMIST AND DRUGGIST

LONDON, SEPTEMBER 14, 1867.

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QUERIES.—The Editor cannot undertake to attend to those which are anonymous, or to send answers through the post.

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The CHEMIST AND DRUGGIST is published on the Fifteenth of every month, except when that date falls upon a Sunday, when it is published on the preceding day. It is regularly supplied direct to the Members of the Trade in Great Britain, Ireland, the Colonies, and all the principal eats of foreign commerce.

Everything intended for insertion in the current Month must be sent in before the 10th, except Employers' and Assistants' Advertisements, which will be received until 9 A.M. on the morning previous to publication.

A PLEA FOR THE INTELLECTUAL LIFE.

Now that our festivities have ended, and the last guest has left the banquet, let us cast up the gain of the intellectual life. What is it, what can it do, and what is it worth? Surely some stronger motive than the pleasures of a soirée, and of other enjoyments which could have been realised nearer home, drew men from all quarters to Dundee. These social amenities are external, happily not accidental, but they need not hide for an instant the deep underlying truth.

Since man desired to be as a god knowing good and evil, nothing can satisfy the yearnings of the heart but knowledge. We give it a finer name and call it science. Of that highest branch, Scientia Scientiarum, it is not for us to speak, but happy indeed is it for him in whom the awakened conscience, the thirst for the intellectual life, has been created. None can tell how or from where the sacred spark may come. Thus far at least may be conceded that there is no more potent influence than the electric agency of association.

The first gift of the intellectual life, is the deliverance from sensual and degrading thought. Professor Bontley has alluded to the subject in words which we should be sorry to dilute by weak comments of our own. The expulsive power of the contemplation of the higher and nobler, necessarily annihilates our baser instincts. All study, in itself ennobling, thus rewards its votary, but more especially is this the result of the investigation of the works of nature. "And then there are," says Mr. George Edwards, "besides all this, the sources of enjoyment which knowledge opens to its possessor. The hillside has a voice, the wild flower, the blue skies above, and the teeming earth beneath, all are full of interest to the man who has stored his mind with knowledge; they bring pleasures about which the votary of dissipation knows nothing, and sighs after in vain—pleasures heightened by the consciousness of the right use of the varied faculties which the great Maker gave."

The second gift of the intellectual life, is peace. That wearying, straining, barren chase after each and every excitement that may satisfy the heart, is for ever at an end. No sooner has the love of learning been evoked, than there springs up a new creation, as fair and instantaneous as that which once rose obedient to the wand of Prospero. There can be no real peace to an aching and a vacant mind—at the mercy of the idlest wind that blows, and before which, as an ignis fatuus, dances every spark that may yield a passing pleasure. Too soon the world around us, with its daily avocations, with its joys and sorrows, will claim us for its own. And this is right. We are not born to dream, and work is the order of the providence of God: but we may enter into an inner circle, and live in a charmed atmosphere. No daily duty need be neglected, no necessary office left unperformed; yet *in the world but not of it*, we may fulfil our course. So true is this that sometimes the very countenance bears witness to the indwelling spirit, as one has sung in an undying line.

Thinking of these things in the light of the late Conference, we implore the reader to test their truth by personal experience. A new session is almost on us, let us therefore not only cultivate these thoughts, but weave them into practical and energetic action. Let the life of drifting cease and the intellectual life begin.

Of the last great gift of friendship, we cannot trust ourselves to speak. How men engaged in similar high pursuits as infallibly get together as drops mingle in the ocean; how such association stimulates and widens the boundary of endeavour; how, by this union, wasteful because purposeless experiment is checked, while even genius does not disdain to accept the aid of sensible advice; and how, though science be but one and indivisible, yet thus its separate branches are indefinitely advantaged, the history of our learned societies will show. What true and exquisite pleasure may be reaped from such intercommunication must be felt, but cannot be described; nor have we a more kindly wish to offer to our readers, than that they may discover for themselves how soon acquaintance merges into friendship, only to ripen into love.

MICHAEL FARADAY.—IN MEMORIAM.

THE short address delivered to the Physical Section of the British Association, by Sir W. Thomson, F.R.S., which we reprint from the columns of *The Laboratory*, is a graceful tribute to the memory of the great man who has just passed away:—

"The progress of mathematical and physical science during the past year will be better represented by the valuable reports to be laid before this section—and the lines of thought which have originated since the British Association last met, will be better illustrated by the papers and discussions which will constitute our daily work—than by any statement which I could have prepared. It was, therefore, my intention not to detain you from the interesting subjects and abundant matter for discussion, which will so fully occupy our time during the meeting, by an introduc-

tory address. But I must ask you to bear with me if I modify somewhat this resolution in consequence of a recent event which I am sure must touch very nearly the hearts of all present, and of very many in all parts of the world, to whom the name of FARADAY has become a household word for all that is admirable in scientific genius.

"Having had so short a time for preparation, I shall not attempt at present any account of Faraday's discoveries and philosophy. But, indeed, it is very unnecessary that I should speak of what he has done for science. All *that* lives for us still, and parts of it we shall meet at every turn through our work in this section.

"I wish I could put in words something of the image which the name of Faraday always suggests to my mind. Kindliness and unselfishness of disposition; clearness and singleness of purpose, brevity, simplicity and directness; sympathy with his audience or his friend; perfect natural tact and good taste; thorough cultivation—all these he had, each to a rare degree; and their influence pervaded his language and manner, whether in conversation or lecture. But all these combined made only a part of Faraday's charm. He had an indescribable quality of quickness and life. Something of the light of his genius irradiated all with a certain bright intelligence, and gave a singular charm to his manner, which was felt by every one, surely, from the deepest philosopher to the simplest child who ever had the privilege of seeing him in his home—the Royal Institution. That light is now gone from us. While thankful for having seen and felt it, we cannot but mourn our loss, and feel that, whatever good things may yet be in store for us, that light we can never see again."

PARIS UNIVERSAL EXHIBITION.

CLASS XLIV.

CHEMICAL AND PHARMACEUTICAL PRODUCTS.

(FROM OUR SPECIAL CORRESPONDENT.)

IN the Grand Duchy of Hesse, Merck, of Darmstadt, makes a fine show of opium and other alkaloids. As far as variety goes it is certainly the finest display of alkaloids and proximate principles in the building; but Mr. Merck appears, except in a few instances, to have been rather desirous of showing products of ordinary commercial quality than to exhibit his productions under their finest forms. We, consequently, have here none of those splendid crystallizations that we have had so often to admire in the cases of Messrs. Macfarlane and Smith, of Edinburgh, Menier, of Paris, and many more. Merck's display begins with a large series of opiums from various localities, with the per centage of morphine contained in them appended, beginning with a specimen of Turkey sham opium which is, of course, innocent of alkaloid, and ending with a fine sample from the same locality containing 16 per cent. There are also two interesting specimens of opium, one grown at Darmstadt the other in France, containing 15 and 16 per cent. of morphine respectively. There is a nice specimen of morphine shown in pretty large crystals, which is the only attempt to exhibit things at their best. There are also some large crystals of codine, but they are much discoloured. The gallic acid shown is beautifully white. The strychnine crystals, although large, are mere Lilliputians when compared to those of Menier's. The scale preparations are all small, and seem to have suffered much in the transit. Some very bad iodide and bromide of cadmium ought certainly to have been taken out of the case long since. A list of the alkaloids and proximate principles making up the rest of the display would fill half a column of our journal. Amongst others, we meet with koussein, sceoparin, coumarin, cantharadin, in beautiful crystals; glycyrrhizin, emetin, ononin, berberin, bebeerine, both as the alkaloid and sulphate; nicotine, peucedanin, colchicin, oxyacanthin, and elaterin. There is also an interesting specimen of caiucic acid. Close by Merck's case, Koech shows some good sulphate of quinine and Falck some fine crystals of tartaric acid. Oehler exhibits a fine series of aniline colours, with specimens of silk dyed with them.

In Baden, we meet first with a fair specimen of yellow prussiate of potash, which has gained the maker a silver medal. It seems singular that such a distinction should have been bestowed on so mediocre a specimen, while the splendid mass of crystals, of the same salt, exhibited in the English department by Mr. Parkins, of Normanton, remained unawarded. Zumner shows some good rough chemicals close by.

In Wurtemburg, we find Jobst, of Stuttgard, making but a poor show, as far as variety goes. His sulphate of quinine is beautifully white, and there is a fine crystallization of the anisate of quinine, a salt which crystallizes in very large crystals. It is said to be much used in Italy at the present time. Jobst also shows a fine specimen of santonin, which is kept in an opaque jar, the cover of which may be lifted at pleasure. This plan might be adopted for showing many preparations of this sort, that are decomposable by light. A specimen of rhœdin extracted from the familiar *papaver rhœas* is also shown. Boehringer exhibits some very poor sulphates of quinine that would hardly go down in the English market at any rate. M. Boehringer surely ought to know that the usual colour of sulphate of quinine is white and not cream colour. He makes up for it, however, by showing a fine sample of brilliantly white iodide of potassium. In this department, and, indeed, in all the countries of Germany, there are some very beautiful specimens of aniline dyes, ultramarine, and fine colours, which will afford a great treat to those connected with these beautiful products. The ultramarines shown by the Karserslaulern Works, Buehner, Zeltner, the Marienberg Works, and Curtius, are quite unsurpassed by any show that has hitherto taken place. The colours shown by Siegle, Pabst and Co., Gademann, and Heyl, are also extremely lovely. These beautiful products, however, have, in many instances, been utterly spoilt by the plague of dust inflicted on the exhibitors generally by M. Leplay's obstinacy in closing up the floors, instead of leaving spaces between the boards, as in all other exhibitions.

Austria makes a comparatively poor show in chemical and pharmaceutical products. A fine specimen of sal gem, from the famous Wielicka mines, in noble cubes, some of them several inches on the side, and almost perfectly transparent, has attracted great attention. Schorm shows some good fine chemicals. Amongst them may be mentioned cæsic, rubidic, and thallic alum, sulphate and iodide of lithium—the latter in thick scales, obtained evidently by pouring the melted salt on to a glass or metal plate—boracic acid, and other similar compounds. Gossleth, Muller and Hochstetter, and Leybel, Wagemmann and Co., show some good rough chemicals. The latter firm exhibit several aluminic compounds from a bauxite found in Lower Austria; also chromates, from chromic iron found in the same locality. There are several specimens of paraffin, distilled from ozokerite, a soft bituminous mineral occurring in large quantities in Bohemia.

Switzerland makes but a poor show. Only one manufacturer of chemicals of any note, Henner, has thought fit to exhibit in anything like a decent manner. Geigy and Dollfuss and Co. show some beautiful specimens of aniline dyes and dyewood extracts; and Harder exhibits a collection of harmless colours specially adapted for confectioners' use. What a pity it is that some English colour maker does not take up a similar branch of manufacture! It would save doctors much trouble in accounting for many anomalous symptoms in sickly children, and afford a rich harvest to the test monial-mongers, who would then be able to sell "microscopical and chemical analyses" of carraway comfits to every sweetmeat maker in the kingdom.

In Spain we find a large number of specimens of very damp and brown table salt; and Berrens, of Barcelona, shows a large series of very poor chemical and pharmaceutical preparations. The gallic and pyrogallic acids, iodide of cadmium and calomel, are singularly bad. Several

exhibitors show tartar and its products; and the Provincial Commission of Seville exhibit, amongst a number of other things, some good specimens of alkanet root, carmine, and mallow, burrage, and poppy flowers.

In Portugal we only have a quantity of salt even damper and browner than that shown by Spain.

In Denmark we once more meet with a manufacturer who knows his business in M. Benzon, of Copenhagen, whose ingenious appliances for casting nitrate of silver, nitre, etc., in sticks, we had occasion to notice favourably in one of the volumes of THE CHEMIST AND DRUGGIST. He shows both rough and fine chemicals and pharmaceutical products, as well as fruit essences and photographic materials. Some native-grown dried flowers and plants shown by him are fully equal to any we have yet encountered. The flowers of the cornflower and mallow are especially good. Close by we find a fine collection of Iceland and Greenland minerals, shown by the Geographical Institute of Copenhagen; amongst them a large mass of cryolite from the latter locality. Some years ago, certain timid individuals began to cry out that the alkali trade of England was in danger, as large quantities of cryolite were being sent to Germany and America for the manufacture of soda; but seeing that, according to the Greenland Cryolite Company's own statement, they only raised 19,000 tons last year, we do not think that the alkali works of Lancashire and the Tyne need think of discharging their hands just yet. We are somewhat surprised to find that Weber and Co., of Copenhagen, who showed soda made from cryolite in 1862, are absent from the present exhibition.

Sweden shows little or nothing in the way of chemical or pharmaceutical products; but a very compact *batterie de pharmacie*, which has strayed amongst the minerals, may be examined with great profit by those who have but little space at their command.

Norway, on whose bleak shores codfish are found in such abundance, of course shows many samples of the oil extracted from their livers. There are some dozen exhibitors, who, amongst them, contribute almost enough to float a ship of the line.

Italy makes a comparatively good display both of chemical and pharmaceutical products. The show of sulphur is a very fine one, specimens more or less good being contributed from nearly every locality producing this valuable element. Next in importance comes the exhibition of Count Lardarel, who shows a series of products obtained from the boracic acid lagoons that he has worked so profitably for himself and his adopted country. There are only one or two exhibitors of citric acid, and that only in the form of salts. Fonzio, of Palermo, who throws down the acid with lime, is absent from the present display. D'Emilion shows sublimed chloride of ammonium and iron in large orange red masses, that seem, from their colour, to be of very uncertain composition. He also shows some beautifully white acetate of potash. Muralta shows several tartar products; and the quinine salts of Dufour are better than many shown either in France or Germany. They exhibit the anisate, but not in such fine crystals as Jobst, of Stuttgardt. They also show large crystals of mannite. This sugar is manufactured in large quantities in Italy at the present time; Milan alone producing no less than 29 tons per annum. Hernot shows mannite and various chemicals, amongst them carbonate of ammonia of beautiful quality, sublimed in tubes. Scerno shows hyposulphite of magnesia, which has been recommended by several Italian doctors as an excellent aperient refrigerent. The quinine salts shown by this manufacturer are not equal to those exhibited by Dufour. The sulphite of magnesia is also shown in crystals.

Rome contributes alum from the Tolfa works; and a Paris chemist with an Italian name exhibits *sucre ferrugineux doré par la lumière*, and an apparently very effective preserving liquor for anatomical preparations.

In Turkey we have a very splendid collection of medicinal plants and pharmaceutical preparations, contributed by Fayk Bey, the director of the Army Medical Department. There are several exhibitors of liquorice root and otto of roses; and in one part of the court there is quite a trophy of bottles of mineral waters from all parts of the Ottoman Empire. There are also numerous specimens of essential oils of origanum, mint, pink (?) neroli, myrtle, geranium, etc.

CORRESPONDENCE

EXTRACTUM CARNIS.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—Will you allow me to draw your attention to a slight error in your article "Gossip" of 15th August. If you refer to the *Times* of 7th, 9th, 13th, and 27th of August, you will see that the mistake has arisen from your putting too much reliance on Mr. Rotter's statement; the words "*inferior half*" are Mr. Rotter's, though to suit his own purpose he wishes you to suppose that they are mine. The case is simply this: Liebig's Extract of Meat Company are making extract of meat in South America, using the whole of the carcase for that purpose. We are following a similar process in Australia, with this slight difference: certain joints, such as flanks, briskets, etc., we preserve entire in canisters, as boiled or stewed beef, and the remaining joints we use in the manufacture of extract of meat. It is not a question of "best half" or "inferior half," but simply one of fitness and adaptation. "Extract of meat," whether called by Liebig's or any other name, is merely beef-tea solidified by evaporation; few housekeepers would consider it an advantage to make beef-tea from such joints as flanks, briskets, etc.

As the secretary of Liebig's Extract of Meat Company has raised the question of the comparative excellence of the meat used by his Company and that used by the Australian Meat Company, I would state that Australian cattle are carefully bred from the prize bulls of the Royal Agricultural Society's shows, and are identical with the best English short horns. What the wild herds of South America are like can be gathered from Mr. Latham's book on Buenos Ayres. South America may, in a few years, produce cattle fit for European consumption, but she certainly does not at present.

Yours obediently,

THE MANAGER OF THE AUSTRALIAN MEAT COMPANY, LIMITED.

137, Houndsditch.

TRADE REPORT.

THERE has been rather more business done in chemicals during the past month, but prices are again in favour of the purchaser, the low rates of money seeming to have no effect to stop the downward tendency. In Tartaric Acid a fair business has been done in English at 13½d. to 13¾d., and some Foreign has been sold at 13d. Oxalic Acid is lower, and small sales only at 8¾d. to 9d. A good business is doing in Chlorate, the last price paid being 11¼d. In Citric Acid buyers have purchased a good quantity, at prices from 1s. 10d. to 1s. 10½d. Bichromate continues in better demand at 5d., and Prussiate of Potass at 12½d to 12¾d. A good business has been done in French Quinine at 4s. 3d. to 4s. 4d., now the latter price is demanded; English is steady at 4s. 9d. Iodine is a trifle better, sales lastly made at 9¼d. to 9½d. Cream of Tartar is quiet at 82s. to 82s. 6d. A fair business has been done in Sulphate of copper at 25s. to 26s. More doing in Sulphate of Ammonia, and the price is firmer at 12s. 9d. to 13s. Bleaching Powder is dull, and the quotation of 14s. is almost nominal. Alum is steady at £7 10s. to £7 15s., acording to package. Soda Crystals are dull and rather cheaper, last sales made at 110s. ex ship. Ash in fair demand at 2¼d. to 2¾d. Caustic is quiet at 17s. to 17s. 6d., and the best 23s. to 23s. 6d. Bicarbonate is also quiet at 14s. 6d. to 15s. Refined Saltpetre is better, and is now firm at 23s. to 24s. Linseed Oil is dull, and prices have declined to 37s. to 37s. 3d. on the spot. Rape is rather better, and a good business done in English

Brown at 38s. A large business has again been done in Petroleum at 1s. 4½d. to 1s. 5½d., tho markot is now quiot at 1s. 5d. for primo quality. Nothing has boen dono in Crude. Turpentine is again lower and dull, French is 28s. 6d., and American 29s. 6d. to 30s.

The usual fortnightly Drug sales havo been rather heavy, but a good portion was disposed of. Castor Oil sold, good and fine pale, 6¾d. to 7d.; Fine Italian, 7½d. to 7¾d. Citronelle sold at 34s. to 35s. 8d. Lemongrass 6d. to 7d. Oil of Almonds is better, last salos mado at 12s. Cassia is dull at 6s. 6d. to 6s. 9d. China Rhubarb is rather easier. Cape Aloes are about 1s. chaper for the medium kinds; Barbadoes and Hepatic are also rather lower. Barks are without change. Turkey Gums are a trifle easier; East Indian is firm, good parcels selling at 84s. to 85s. Turkey Opium is steady, good and fine 15s. 6d. to 17s. Turkey Galls rather cheaper; Japan rather dearer, the last salos being at 54s. Ipecacuhana is 6d. to 1s. lower. Jalap is steady. Cubebs are lower, last sales made at 51s. to 52s. Balsam Capivi is 1d. cheaper, fair selling at 1s. 6d. to 1s. 7d. Jamaica Bees Wax is again lower, good quality £7 15s. Tonquin Musk is 1s. to 2s. cheaper. Sarsaparilla is without change. A large parcel of Tinnovelly Senna sold at 10½d. for ordinary up to 11½d. for good; Gambier is dull. Fine Orange Shellac is 2s. to 3s. dearer, 90s. to 91s. 6d. being paid. Cochineal is 1d. cheaper, and ordinary kinds 2d. lower. Safflower is 2s. 6d. to 5s. dearer. Rough Saltpetro is 6d. to 1s. dearer, and a good business. Saffron is better. Turmeric is dull, good Bengal 22s. 6d. to 23s. Gamboge is held for higher prices. Logwood is rather easier. In other goods there is no change.

PRICE CURRENT.

These quotations are the latest for ACTUAL SALES *in Mincing Lane. It will be necessary for our retail subscribers to bear in mind that they cannot, as a rule, purchase at the prices quoted, inasmuch as these are the* CASH PRICES IN BULK. *They will, however, be able to form a tolerably correct idea of what they ought to pay.*

	1867.		1867.		1866.		1866.	
	s.	d.	s.	d.	s.	d.	s.	d.
ARGOL, Capo, per cwt.	62	6 ..	75	0	70	0 ..	82	6
French	48	0 ..	70	0	56	0 ..	76	0
Oporto, red	29	0 ..	30	0	30	0 ..	32	0
Sicily	50	0 ..	55	0	67	6 ..	70	0
Naples, white	60	0 ..	70	0	66	0 ..	71	0
Florence, white	75	0 ..	80	0	85	0 ..	90	0
red	65	0 ..	70	0	77	0 ..	80	0
Bologna, white	78	0 ..	80	0	87	6 ..	90	0
ARROWROOT..(duty 4½ per cwt.)								
Bermuda..per lb.	1	0 ..	1	6	1	0 ..	1	4
St. Vincent	0	2½ ..	0	5½	0	3½ ..	0	5½
Jamaica	0	2½ ..	0	3½	0	3 ..	0	4½
Other West India	0	0 ..	0	0	0	2½ ..	0	3½
Brazil	0	0 ..	0	0	0	2¾ ..	0	3
East India	0	2 ..	0	3	0	2½ ..	0	4
Natal	0	3 ..	0	7½	0	3½ ..	0	7½
Sierra Leone	0	4 ..	0	4½	0	3½ ..	0	4
ASHES....per cwt.								
Pot, Canada, 1st sort	32	6 ..	33	0	31	6 ..	32	0
Pearl, ditto, 1st sort	44	0 ..	44	6	0	0 ..	0	0
BRIMSTONE,								
rough....per ton	135	0 ..	0	0	130	0 ..	0	0
roll	200	0 ..	210	0	190	0 ..	210	0
flour	270	0 ..	290	0	245	0 ..	260	0
CHEMICALS,								
Acid—Acetic, per lb.	0	4 ..	0	0	0	4 ..	0	0
Citric	1	10 ..	1	10½	1	10 ..	1	11
Nitric	0	5 ..	0	5½	0	5 ..	0	5½
Oxalic	0	8¾ ..	0	9	0	11 ..	0	11½
Sulphuric	0	0¾ ..	0	1	0	0¾ ..	0	1
Tartaric crystal	1	1½ ..	1	1¾	1	3½ ..	1	4
powdered	1	2½ ..	1	3	1	4½ ..	0	0
Alum .....per ton	150	0 ..	155	0	150	0 ..	155	0
powder	170	0 ..	0	0	160	0 ..	0	0
Ammonia, Carbonate, per lb.	0	5 ..	0	5½	0	5 ..	0	5½
Sulphato .....per ton	240	0 ..	250	0	220	0 ..	245	0
Antimony, ore	0	0 ..	220	0	180	0 ..	200	0
crudo .....per cwt	21	0 ..	22	0	24	0 ..	25	0
regulus	40	0 ..	42	0	34	0 ..	0	0
French star	40	0 ..	42	0	34	0 ..	0	0
Arsenic, lump	16	0 ..	16	6	15	0 ..	15	6
powder	7	6 ..	7	9	6	6 ..	7	0
Bleaching powder	14	0 ..	0	0	15	6 ..	16	0
Borax, East India refined ..	0	0 ..	0	0	0	0 ..	0	0
British	70	0 ..	72	0	65	0 ..	0	0
Calomel .....per lb.	2	5 ..	0	0	2	5 ..	0	0
Camphor, refined	1	10½ ..	1	11	1	6½ ..	0	0
Copperas, green ....per ton	57	6 ..	60	0	55	0 ..	57	6
Corrosive Sublimate, per lb.	1	11 ..	0	0	1	11 ..	0	0
Green Emerald	0	0 ..	0	0	0	0 ..	0	0
Brunswick ....per cwt.	0	0 ..	0	0	0	..	0	0
Iodine, dry .....per oz.	0	9 ..	0	9½	0	9¼ ..	0	9½
Magnesia, Carbon....per cwt.	42	6 ..	0	0	42	6 ..	45	0
Calcined....per lb.	1	6 ..	1	8	1	6 ..	1	8
Minium, red .....per cwt.	21	6 ..	22	0	22	0 ..	23	6
orange	33	0 ..	0	0	32	0 ..	0	0
Potash, Bichromate..per lb.	0	5 ..	0	0	0	5½ ..	0	5¾
Chlorate	1	0 ..	1	0½	1	1½ ..	1	2
Hydriodate..per lb.	12	0 ..	0	0	0	0 ..	0	0
Prussiate....per lb.	1	0½ ..	1	1	1	6½ ..	1	1½
red	1	9½ ..	1	10	1	1 ..	1	10
Precipitate, red .... per lb.	2	5 ..	2	6	0	0 ..	2	6
white	0	0 ..	2	5	2	5 ..	0	0
Prussian Blue	1	0 ..	1	10	1	0 ..	1	10
Rose Pink .....per cwt.	29	0 ..	0	0	29	0 ..	0	0
Sal-Acetos .....per lb.	0	11 ..	0	11½	1	1 ..	1	1½
Sal-Ammoniac ....per cwt.								
British	33	3 ..	35	0	35	6 ..	38	0
Salts, Epsom	8	0 ..	8	9	8	6 ..	9	6
Glauber	5	0 ..	0	0	5	0 ..	6	0
Soda, Ash.....per deg.	0	2¼ ..	0	2⅜	0	2⅜ ..	0	3½
Bicarbonate..per cwt.	15	0 ..	15	6	16	6 ..	17	0
Crystals .....per ton	110	0 ..	0	0	115	0 ..	120	0
Sugar Load, white per cwt.	37	6 ..	38	0	38	0 ..	39	0
brown	28	0 ..	29	6	27	0 ..	27	6
Sulphate Quinine....per oz.								
British, in bottle ..	4	9 ..	4	10	5	0 ..	0	0
Foreign	4	4 ..	0	0	4	6 ..	4	7
Sulphate Zinc.....per cwt.	0	0 ..	0	0	0	0 ..	0	0
Verdigris.....per lb.	0	11 ..	1	0	0	11 ..	1	0
Vermilion, English	2	9 ..	3	4	2	9 ..	3	2
China	2	6 ..	2	8	3	4 ..	3	0
Vitriol, blue or Rom. per ct.	25	0 ..	26	0	26	0 ..	27	6
COCHINEAL, per lb.								
Honduras, black	3	3 ..	4	4	3	0 ..	4	6
silver	2	8 ..	3	10	2	0 ..	3	8
Mexican, black	3	3 ..	3	7	3	3 ..	3	7
silver	3	3 ..	3	4	3	1 ..	3	3
Lima	0	0 ..	0	0	0	0 ..	0	0
Teneriffe, black	3	3 ..	4	6	3	3 ..	4	3
silver	3	2 ..	3	7	3	3 ..	3	6
DRUGS,								
Aloes, Hepatic ....per cwt.	80	0 ..	180	0	100	0 ..	180	0
Socotrine	180	0 ..	290	0	140	0 ..	290	0
Cape, good	30	0 ..	32	0	36	0 ..	39	0
inferior	17	0 ..	29	0	20	0 ..	35	0
Barbadoes	80	0 ..	280	0	50	0 ..	280	0
Ambergris, grey ....per oz.	35	0 ..	40	0	30	0 ..	35	0
Angelica Root ....per cwt.	0	0 ..	0	0	0	0 ..	0	0
Aniseed, China star	0	0 ..	120	0	75	0 ..	76	0
German, &c.	30	0 ..	42	0	26	0 ..	40	0
Balsam, Canada ....per lb.	1	4 ..	1	5	1	8 ..	0	0
Capivi	1	6 ..	1	8	1	8 ..	1	9
Peru	6	9 ..	7	0	5	6 ..	0	0
Tolu	2	2 ..	2	3	2	6 ..	2	7
Bark, Cascarilla....per cwt.	16	0 ..	28	0	18	0 ..	29	0
Peru, crown & grey per lb.	1	4 ..	2	0	1	2 ..	2	3
Calisaya, flat	2	6 ..	2	9	2	6 ..	2	9
quill	2	2 ..	2	6	1	10 ..	2	4
Carthagena	0	10 ..	1	4	1	0 ..	1	6
Pitayo	0	9 ..	1	8	0	9 ..	2	0
Red	2	6 ..	12	0	2	6 ..	13	0
Bay Berries.....per cwt.	0	0 ..	0	0	0	0 ..	0	0
Bucca Leaves.....per lb.	0	2½ ..	0	9	0	1½ ..	0	11
Camomile Flowers	35	0 ..	90	0	40	0 ..	120	0
Camphor, China	140	0 ..	142	6	120	0 ..	122	6
Canella alba	22	0 ..	27	0	40	0 ..	45	0
Cantharides .....per lb.	2	4 ..	2	5	2	5 ..	0	0
Cardamoms, Malabar, good	5	6 ..	6	9	5	3 ..	6	6
inferior	4	0 ..	5	9	3	6 ..	5	0
Madras	4	0 ..	5	9	3	0 ..	4	9
Ceylon	2	6 ..	3	0	3	0 ..	3	9
Cassia Fistula.....per cwt.	20	0 ..	32	0	15	0 ..	35	0
Castor Oil, 1st pale ..per lb.	0	6½ ..	0	7½	0	7 ..	0	7½
2nd	0	6 ..	0	6¾	0	6¾ ..	0	7
inferior and dark	0	5¾ ..	0	6	0	6½ ..	0	6¾
Bombay, in casks	0	5½ ..	0	0	0	5½ ..	0	6
Castorum	1	0 ..	20	0	1	0 ..	20	0
China Root .....per cwt.	28	0 ..	30	0	20	0 ..	40	0
Cocculus Indicus	30	0 ..	32	6	26	0 ..	30	0
Cod Liver Oil .....per gal.	4	0 ..	6	6	4	6 ..	9	0
Colocynth, apple ....per lb.	0	7 ..	0	11	0	7½ ..	1	0
Colombo Root ....per cwt.	25	0 ..	55	0	130	0 ..	160	0
Cream Tartar								
French	82	0 ..	82	6	82	6 ..	85	0
Venetian	0	0 ..	0	0	87	6 ..	0	0
grey	72	6 ..	75	0	80	0 ..	82	6
brown	70	0 ..	72	6	80	0 ..	0	0
Croton Seed	89	6 ..	105	0	250	0 ..	260	0
Cubebs	51	0 ..	52	0	67	6 ..	72	6
Cummin Seed	17	0 ..	20	0	17	0 ..	24	0
Dragon's blood reed	200	0	220	0	300	0 ..	400	0
lump	85	0 ..	280	0	105	0 ..	280	0
Galangal Root	13	0 ..	14	0	10	6 ..	12	6
Gentian Root	16	0 ..	0	0	17	0 ..	18	0
Guinea Grains .... per cwt.	53	0 ..	56	0	68	0 ..	70	0
Honey, Narbonne	50	0 ..	70	0	50	0 ..	70	0
Cuba	26	0 ..	41	0	26	0 ..	36	0
Jamaica	23	0 ..	55	0	29	0 ..	55	0
Ipecacuanha .....per lb.	8	6 ..	8	9	12	0 ..	12	3
Isinglass, Brazil	2	0 ..	3	10	2	2 ..	5	4
East India	1	10 ..	4	2	1	6 ..	4	0
West India	3	8 ..	3	11	3	7 ..	4	2
Russian	9	0 ..	10	6	7	6 ..	11	0
Jalap	0	9 ..	5	0	0	9 ..	5	0

DRUGS—*continued.*	1867. s. d.		1867. s. d.		1866. s. d.		1866. s. d.	
Juniper Berries ....per cwt.	8 0	..	0 6		8 0	..	10 0	
Gorman and French ..	9 0	..	10 0		9 0	..	10 0	
Italian	0 0½	..	0 0⅝		0 0½	..	0 0⅝	
Lemon Juice .....per dog.		..						
Liquorice .....per cwt.								
Spanish	65 0	..	70 0		75 0	..	80 0	
Italian	50 0	..	60 0		55 0	..	75 0	
Manna, flaky	3 9	..	4 0		3 6	..	4 0	
small	1 0	..	1 6		1 10	..	2 0	
Musk .....per oz.	15 0	..	32 0		18 0	..	84 6	
Nux Vomica	18 0	..	14 6		12 0	..	15 0	
Opium, Turkey	15 6	..	17 6		14 6	..	10 0	
Egyptian	3 0	..	7 0		3 6	..	7 0	
Orris Root .....per cwt.	30 0	..	42 0		33 0	..	37 0	
Pink Root ..... per lb.	0 10	..	0 11		3 9	..	4 0	
Quassia (bitter wood) per ton	120 0	..	130 0		130 0	..	135 0	
Rhatany Root .....per lb.	0 7	..	1 0		0 4	..	1 2	
Rhubarb, China, round	2 6	..	9 6		2 6	..	9 0	
flat	2 0	..	7 6		2 0	..	7 6	
Dutch, trimmed ..	9 0	..	12 0		9 0	..	14 0	
Russian	9 0	..	16 0		9 0	..	16 0	
Saffron, Spanish	36 0	..	39 0		32 0	..	36 0	
Salep..... per cwt.	120 0	..	130 0		120 0	..	130 0	
Sarsaparilla, Lima	1 0	..	1 4		1 0	..	1 4	
Para	0 11	..	1 1		0 11	..	1 1	
Honduras	0 10	..	1 5		0 10	..	1 6	
Jamaica	1 0	..	2 1		1 0	..	2 2	
Sassafras .....per cwt.	8 0	..	9 0		9 0	..	0 0	
Scammony, virgin ..per lb.	80 0	..	38 0		30 0	..	44 0	
second	11 0	..	23 0		12 0	..	23 0	
Seneka Root	1 6	..	0 0		2 6	..	0 0	
Senna, Calcutta	0 0	..	0 0		0 0	..	0 0	
Bombay	0 2½	..	0 4½		0 4	..	0 5	
Tinnevelly	0 2	..	0 9		0 3½	..	0 9	
Alexandria	0 5	..	0 10		0 3	..	0 9	
Snake Root	2 4	..	2 6		7 3	..	0 0	
Spermaceti, refined	1 6	..	0 0		0 0	..	1 2	
Squills	0 2	..	0 3½		0 2	..	3½	
Tamarinds, E. India, per cwt.	27 0	..	27 6		48 0	..	56 0	
West India	16 0	..	28 0		16 0	..	33 0	
Terra Japonica—								
Gambier ....per cwt.	17 6	..	24 0		23 6	..	32 0	
Cutch	20 0	..	35 0		26 0	..	32 0	
Valerian Root, English	20 0	..	29 0		20 0	..	29 0	
Vanilla, Mexican.....per lb.	4 0	..	16 0		5 0	..	16 0	
Wormseed.....por cwt.	5 6	..	6 0		0 0	..	0 0	
GUM—Ammoniac, drop, per cwt.	180 0	..	220 0		120 0	..	170 0	
lump	100 0	..	165 0		40 0	..	85 0	
Animi, fine pale	210 0	..	230 0		210 0	..	270 0	
bold amber.....	100 0	..	200 0		190 0	..	220 0	
medium	160 0	..	180 0		160 0	..	180 0	
small and dark	100 0	..	150 0		100 0	..	150 0	
ordinary dark	70 0	..	105 0		40 0	..	97 0	
Arabic, E. I., fine pale picked	86 0	..	88 0		95 0	..	100 0	
unsorted, good to fine	73 0	..	80 0		72 0	..	90 0	
red and mixed	55 0	..	68 0		55 0	..	70 0	
siftings	35 0	..	45 0		45 0	..	50 0	
Turkey, picked, good to fine	190 0	..	220 0		170 0	..	220 0	
second and inferior.	85 0	..	160 0		95 0	..	160 0	
in sorts	70 0	..	90 0		46 0	..	70 0	
Gedda.....	62 0	..	65 0		61 0	..	63 0	
Barbary, white	75 0	..	0 0		95 0	..	100 0	
brown	90 0	..	0 0		85 0	..	90 0	
Australian.....	57 0	..	62 0		56 0	..	65 0	
Assafœtida, fair to good	57 0	..	90 0		30 0	..	65 0	
Benjamin, 1st quality	360 0	..	700 0		300 0	..	400 0	
2nd „	240 0	..	350 0		240 0	..	300 0	
3rd „	50 0	..	240 0		50 0	..	240 0	
Copal, Angola, red	60 0	..	70 0		80 0	..	90 0	
pale	0 0	..	0 0		85 0	..	95 0	
Benguela	60 0	..	70 0		67 0	..	80 0	
Sierra Leone .. per lb.	0 4½	..	0 11½		0 4	..	0 11½	
Manilla..... per cwt.	20 0	..	45 0		25 0	..	50 0	
Dammar, pale .....per cwt.	65 0	..	75 0		52 6	..	61 0	
Galbanum.....	240 0	..	280 0		200 0	..	210 0	
Gamboge, picked, pipe	750 0	..	800 0		400 0	..	460 0	
in sorts	600 0	..	700 0		280 0	..	400 0	
Guaiacum.....per lb.	0 9	..	2 6		0 9	..	1 9	
Kino ..... per cwt.	160 0	..	240 0		300 0	..	880 0	
Kowrie	30 0	..	75 0		30 0	..	80 0	
Mastic, picked ..... per lb.	5 0	..	6 0		12 0	..	13 0	
Myrrh, gd. and fine, per cwt.	150 0	..	180 0		130 0	..	160 0	
sorts.....	80 0	..	140 0		70 0	..	110 0	
Olibanum, pale drop	72 6	..	80 0		69 0	..	72 6	
amber and yellow	62 0	..	70 0		59 0	..	68 0	
mixed and dark..	24 0	..	40 0		20 0	..	48 0	
Senegal	90 0	..	95 0		90 0	..	105 0	
Sandrac	85 0	..	90 0		80 0	..	100 0	
Tragacanth, leaf	220 0	..	320 0		200 0	..	280 0	
in sorts	80 0	..	200 0		70 0	..	180 0	
OILS.....per tun	£ s.		£ s.		£ s.		£ s.	
Seal	35 0	..	41 0		47 0	..	0 0	
Sperm, body.....	103 0	..	105 0		130 0	..	0 0	
Cod	38 0	..	38 10		48 0	..	0 0	
Whale, Greenland	0 0	..	0 0		0 0	..	0 0	
South Sea, pale.....	38 10	..	40 0		42 0	..	44 0	
East India Fish.....	35 0	..	0 0		35 0	..	0 0	
Olive, Galipoli ..... per ton	67 0	..	68 0		56 0	..	56 10	
	s. d.		s. d.		s. d.		s. d.	
Florence, half-chest ..	0 0	..	0 0		0 0	..	0 0	
Cocoanut, Cochin .. per cwt.	56 0	..	57 0		57 6	..	58 6	
Ceylon	50 0	..	52 6		47 6	..	49 0	
Sydney	45 0	..	50 0		43 0	..	49 0	
Ground Nut an Gln								
Bombay.....	50 0	..	0 0		53 0	..	0	

OILS—*continued.*	1867. s. d.		1867. s. d.		1866. s. d.		1866. s. d.	
Madras .....per cwt.	54 0	..	55 0		50 0	..	51 0	
Palm, fine	40 0	..	41 0		42 0	..	43 0	
Linseed	37 6	..	0 0		41 6	..	42 0	
Rapeseed, English, pale	40 0	..	40 6		43 0	..	0 0	
brown	38 0	..	0 0		40 6	..	0 0	
Foreign pale	42 0	..	0 0		44 0	..	44 6	
brown	38 6	..	39 0		41 6	..	0 0	
Lard	57 0	..	0 0		50 0	..	65 0	
Tallow	36 0	..	38 0		35 0	..	36 0	
Rock Crude ..... per ton	£11 10	..	0 0		£15 0	..	£ 0 0	
OILS, Essential—								
Almond, essential ....por lb.	35 0	..	0 0		44 0	..	0 0	
expressed	1 10	..	0 0		2 3	..	0 0	
Aniseed	12 0	..	12 1½		9 0	..	9 3	
Bay .....per cwt.	80 0	..	90 0		80 0	..	90 0	
Bergamot .....por lb.	11 3	..	19 0		10 6	..	16 0	
Cajeputa, (in bond) ..per oz.	0 2	..	0 2½		0 2¾	..	0 3	
Caraway .....por lb.	5 0	..	6 6		5 0	..	0 6	
Cassia	6 6	..	6 9		7 6	..	0 0	
Cinnamon (in bond) ..per oz.	1 3	..	3 5		1 6	..	3 9	
Cinnamon Leaf	0 4	..	0 6		0 4	..	0 6	
Citronel	0 3	..	0 3½		0 3¾	..	0 5½	
Clove	2 7	..	0 0		2 8	..	0 0	
Croton	1 2	..	1 6		1 2	..	1 6	
Juniper.....per lb.	1 6	..	1 9		1 9	..	2 0	
Lavender	2 9	..	3 9		2 0	..	3 3	
Lemon	5 0	..	8 0		5 0	..	7 0	
Lemongrass.....per oz.	0 5	..	0 7		1 0	..	1 2	
Mace, ex.	0 6	..	0 7		0 1	..	0 2½	
Neroli	3 6	..	4 6		3 6	..	4 6	
Nutmeg	0 6	..	0 7		0 3	..	0 0	
Orange .....per lb.	5 0	..	7 6		5 0	..	7 6	
Otto of Roses .....por oz.	17 0	..	20 0		17 0	..	20 0	
Peppermint, per lb.								
American	21 0	..	21 6		15 6	..	16 0	
English	32 0	..	42 0		30 0	..	33 0	
Rhodium .....per oz.	0 0	..	0 0		0 0	..	0 0	
Rosemary .....per lb.	1 9	..	2 0		1 9	..	2 0	
Sassafras	3 0	..	3 6		3 0	..	3 6	
Spearmint	16 0	..	25 0		21 0	..	0 0	
Spike	0 0	..	0 0		0 0	..	0 0	
Thymo	2 0	..	4 0		1 8	..	2 0	
PITCH, British .....per cwt.	8 6	..	0 0		8 6	..	0 0	
Swedish	0 0	..	0 0		0 0	..	0 0	
SALTPETRE, per cwt.								
English, 6 per cent. or under	19 0	..	19 6		22 6	..	23 0	
over 6 per cent.	18 0	..	18 6		21 6	..	22 6	
Madras	15 0	..	10 0		20 0	..	21 0	
Bombay.....	14 0	..	17 0		16 0	..	20 0	
British-refined	23 0	..	24 0		25 6	..	26 0	
Nitrate of soda.....	11 6	..	12 6		12 0	..	12 6	
SEED, Canary .....per qr.	52 0	..	58 0		40 0	..	48 0	
Caraway, English .. per cwt.	0 0	..	0 0		0 0	..	0 0	
German, &c.	40 0	..	44 0		0 0	..	0 0	
Coriander	18 0	..	20 0		0 0	..	0 0	
East India.....	0 0	..	0 0		0 0	..	0 0	
Hemp.....	44 0	..	46 0		44 0	..	46 0	
Linseed, Black Sea.....	63 0	..	0 0		62 0	..	63 0	
Calcutta	67 0	..	68 0		68 0	..	70 0	
Bombay	66 0	..	69 0		72 0	..	0 0	
Egyptian	0 0	..	0 0		0 0	..	0 0	
Mustard, brown....per bshl.	11 0	..	12 0		0 0	..	0 0	
white	10 0	..	10 6		25 0	..	30 0	
Poppy, East India....per qr.	62 0	..	63 0		56 0	..	0 0	
Rape, English	0 0	..	0 0		0 0	..	0 0	
Danube	59 0	..	60 0		0 0	..	0 0	
Calcutta fine.....	53 0	..	53 6		52 0	..	54 6	
Bombay	56 0	..	62 0		59 0	..	60 0	
Teel, Sesamy or Gngy.....	64 0	..	67 0		65 0	..	68 0	
Cotton .....per ton	190 0	..	200 0		160 0	..	170 0	
Ground Nut Kernels per ton	360 0	..	0 0		340 0	..	0 0	
SOAP, Louden yel. .. per cwt.	28 0	..	82 0		28 0	..	32 0	
mottled	32 0	..	36 0		32 0	..	36 0	
curd	46 0	..	50 0		46 0	..	50 0	
Castile	40 0	..	42 0		40 0	..	42 0	
Marseilles	40 0	..	42 0		40 0	..	42 0	
Soy, China .....per gal.	2 9	..	0 0		3 0	..	3 1	
Japan	0 0	..	0 0		0 0	..	0 0	
Sponge, Turkey, fine picked	12 0	..	14 0		14 0	..	18 0	
fair to good	5 0	..	11 0		6 0	..	12 0	
ordinary ..	2 0	..	4 0		1 6	..	4 0	
Bahama ..	0 8	..	1 9		0 8	..	2 6	
TURPENTINE, Rough, per ct.	0 0	..	0 0		10 0	..	0 0	
Spirits, French	29 0	..	0 0		38 0	..	0 0	
American, in casks	30 6	..	0 0		38 6	..	0 0	
WAX, Bees, English	180 0	..	190 0		180 0	..	185 0	
Gorman	170 0	..	190 0		195 0	..	200 0	
American	150 0	..	170 0		185 0	..	190 0	
white fine	0 0	..	0 0		0 0	..	0 0	
Jamaica	150 0	..	160 0		160 0	..	180 0	
Gambia	170 0	..	175 0		175 0	..	190 0	
Mogadore	130 0	..	160 0		140 0	..	165 0	
East India.....	160 0	..	190 0		160 0	..	190 0	
ditto, bleached	165 0	..	205 0		190 0	..	210 0	
vegetable, Japan	54 0	..	95 0		54 0	..	88 0	
WOOD, Dye, per ton								
Fustic, Cuba.....	150 0	..	175 0		150 0	..	170 0	
Jamaica	150 0	..	155 0		100 0	..	105 0	
Savanilla	120 0	..	130 0		120 0	..	130 0	
Zante	0 0	..	0 0		0 0	..	0 0	
Logwood, Campeachy	165 0	..	170 0		165 0	..	180 0	
Honduras ..	100 0	..	105 0		100 0	..	105 0	
St. Domingo	82 0	..	85 0		90 0	..	95 0	
Jamaica ...	77 6	..	80 0		82 0	..	87 6	